

APPENDIX 2: Data of EMI test

Output Power (Conducted)

(Reference data)

UL Japan, Inc.

Head Office EMC Lab. No.7 shielded room

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, Modulation 7(Worst), Slave(Worst)
(L:1905.3125MHz, H:1909.6875MHz)

Regulation FCC part 24 Section 24.232(c),
Test Method FCC Part 2 Section 2.1046
Test Distance -
Date July 31, 2008
Temperature 24 deg.C.
Humidity 57 %
Engineer Kenichi Adachi

Modulation 7 (PK worst) (Gate on) Slave

Ch	Frequency [MHz]	P/M (PK) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]	Antenna Gain [dBi]	E.I.R.P. Result [dBm]	Limit (E.I.R.P.) [dBm]	Margin [dB]
Low	1905.3125	4.62	19.95	0.00	24.57	4.00	28.57	33.00	4.43
High	1909.6875	6.38	19.95	0.00	26.33	4.00	30.33	33.00	2.67

Sample Calculation : E.I.R.P. Result = P/M (PK) Reading + Atten. + Cable Loss + Antenna Gain

Conducted Power Result = P/M (PK) Reading + Atten. + Cable Loss.

*The limit is rounded down to one decimal place.

*The test result is round off to one or two decimal places, so some differences might be observed.

(Reference data (Precheck))

Master (Gate On)

Mod.	Frequency [MHz]	P/M(PK) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]	Antenna Gain [dBi]	E.I.R.P. Result [dBm]	Limit (E.I.R.P.) [dBm]	Margin [dB]
0	1905.3125	2.22	19.95	0.00	22.17	4.00	26.17	33.00	6.83
1	1905.3125	2.25	19.95	0.00	22.20	4.00	26.20	33.00	6.80
2	1905.3125	3.55	19.95	0.00	23.50	4.00	27.50	33.00	5.50
3	1905.3125	3.51	19.95	0.00	23.46	4.00	27.46	33.00	5.54
4	1905.3125	3.11	19.95	0.00	23.06	4.00	27.06	33.00	5.94
5	1905.3125	3.72	19.95	0.00	23.67	4.00	27.67	33.00	5.33
6	1905.3125	3.22	19.95	0.00	23.17	4.00	27.17	33.00	5.83
7	1905.3125	4.43	19.95	0.00	24.38	4.00	28.38	33.00	4.62

Sample Calculation : E.I.R.P. Result = P/M (PK) Reading + Atten. + Cable Loss + Antenna Gain

Conducted Power Result = P/M (PK) Reading + Atten. + Cable Loss.

Slave (Gate On)

Mod.	Frequency [MHz]	P/M(PK) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]	Antenna Gain [dBi]	E.I.R.P. Result [dBm]	Limit (E.I.R.P.) [dBm]	Margin [dB]
0	1905.3125	2.41	19.95	0.00	22.36	4.00	26.36	33.00	6.64
1	1905.3125	2.43	19.95	0.00	22.38	4.00	26.38	33.00	6.62
2	1905.3125	4.00	19.95	0.00	23.95	4.00	27.95	33.00	5.05
3	1905.3125	3.97	19.95	0.00	23.92	4.00	27.92	33.00	5.08
4	1905.3125	3.48	19.95	0.00	23.43	4.00	27.43	33.00	5.57
5	1905.3125	4.02	19.95	0.00	23.97	4.00	27.97	33.00	5.03
6	1905.3125	3.58	19.95	0.00	23.53	4.00	27.53	33.00	5.47
7	1905.3125	4.62	19.95	0.00	24.57	4.00	28.57	33.00	4.43

Sample Calculation : E.I.R.P. Result = P/M (PK) Reading + Atten. + Cable Loss + Antenna Gain

Conducted Power Result = P/M (PK) Reading + Atten. + Cable Loss.

UL Japan, Inc.

Head Office EMC Lab.

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Test report No. : 28LE0177-HO-A-R3
Page : 15 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
FCC ID : JOYIUW19AA

Output Power (Radiated)

		UL Japan, Inc.
Company	KYOCERA Corporation	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Equipment	iBurst User Terminal 2Mbps Desktop type	Regulation FCC part 24 Section 24.232(c)
Model	UTW1900D-US-A	Test Method FCC part 2 Section 2.1053
S/N	0108EJ00005	Test Distance 3m
Power	AC 120V / 60Hz	Date July 31, 2008
Mode	Transmitting, Modulation 7(Worst), Slave(Worst) (L:1905.3125MHz, H:1909.6875MHz)	Temperature 24 deg.C.
EUT-Position	H: Y-axis / V: Y-axis	Humidity 69 %
Antenna- Position	H: 90deg. / V: 180deg.	Engineer Takumi Shimada
Tx Antenna	0.8m Height	

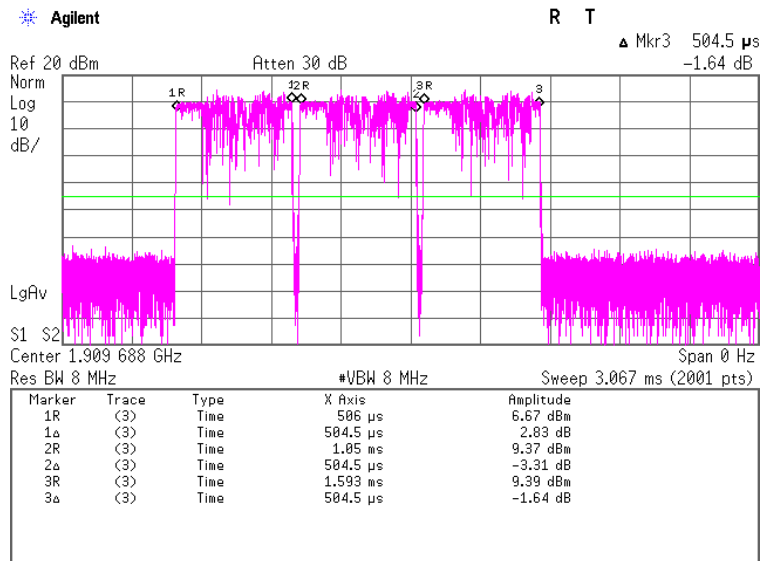
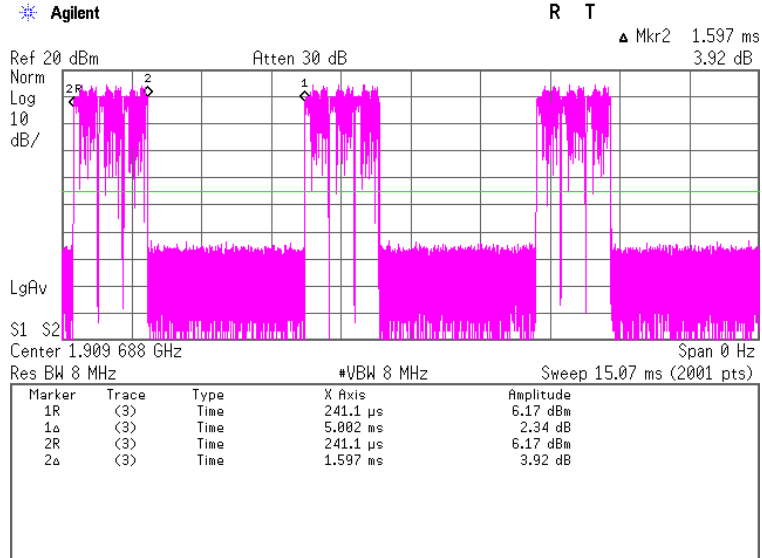
(PK)

No.	Frequency [MHz]	P/M Reading (PK) [dBm]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Rx Amp. Gain [dB]	Result EIRP [dBm]		LIMIT [dBm] (EIRP)	MARGIN [dB]		Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER	
		L	1905.3125	-9.2	-11.6				-9.7	-12.7		4.0	9.9	
H	1909.6875	-9.2	-11.0	-9.6	-12.0	4.0	10.0	32.7	28.9	26.6	33.0	4.1	6.4	

CALCULATION RESULT = SG Reading + Rx Amp. Gain - Tx Loss + Tx Ant. Gain
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperiodic Antenna(300-1000MHz), Horn Antenna(1-26.5GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-26.5GHz)
With the result above, the equivalent isotropic radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
*The limit is rounded down to one decimal place.
*The test result is round off to one or two decimal places, so some differences might be observed.

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Timeslot evidence
 (Reference data)



Emission Bandwidth and 99%Occupied Bandwidth

Company KYOCERA Corporation
 Equipment iBurst User Terminal 2Mbps Desktop type
 Model UTW1900D-US-A
 S/N 0108EJ00005
 Power AC 120V / 60Hz
 Mode Transmitting, Modulation 3(Worst), Slave(Worst)
 (L:1905.3125MHz, H:1909.6875MHz)

UL Japan, Inc.
 Head Office EMC Lab. No.7 shielded room
 Regulation FCC part 24 Section 24.238(b)
 Test Method FCC Part 2 Section 2.1049
 Test Distance -
 Date July 31, 2008
 Temperature 24 deg.C.
 Humidity 57 %
 Engineer Kenichi Adachi

Emission Bandwidth 1 (-26dB Bandwidth)

PK DETECT(S/A: span 1MHz, RBW 10kHz ,VBW 30kHz)

CH	FREQ	Bandwidth	Limit
	[MHz]	[kHz]	[kHz]
Low	1905.3125	648.227	-
High	1909.6875	638.226	-

Emission Bandwidth 2 (-6dB Bandwidth)

PK DETECT(S/A: span 1MHz, RBW 10kHz ,VBW 30kHz)

CH	FREQ	Bandwidth	Limit
	[MHz]	[kHz]	[kHz]
Low	1905.3125	484.106	-
High	1909.6875	469.569	-

99% Occupied Bandwidth

PK DETECT(S/A: span 1MHz, RBW 10kHz ,VBW 30kHz)

CH	FREQ	Bandwidth	Limit
	[MHz]	[kHz]	[kHz]
Low	1905.3125	562.542	-
High	1909.6875	559.324	-

UL Japan, Inc.

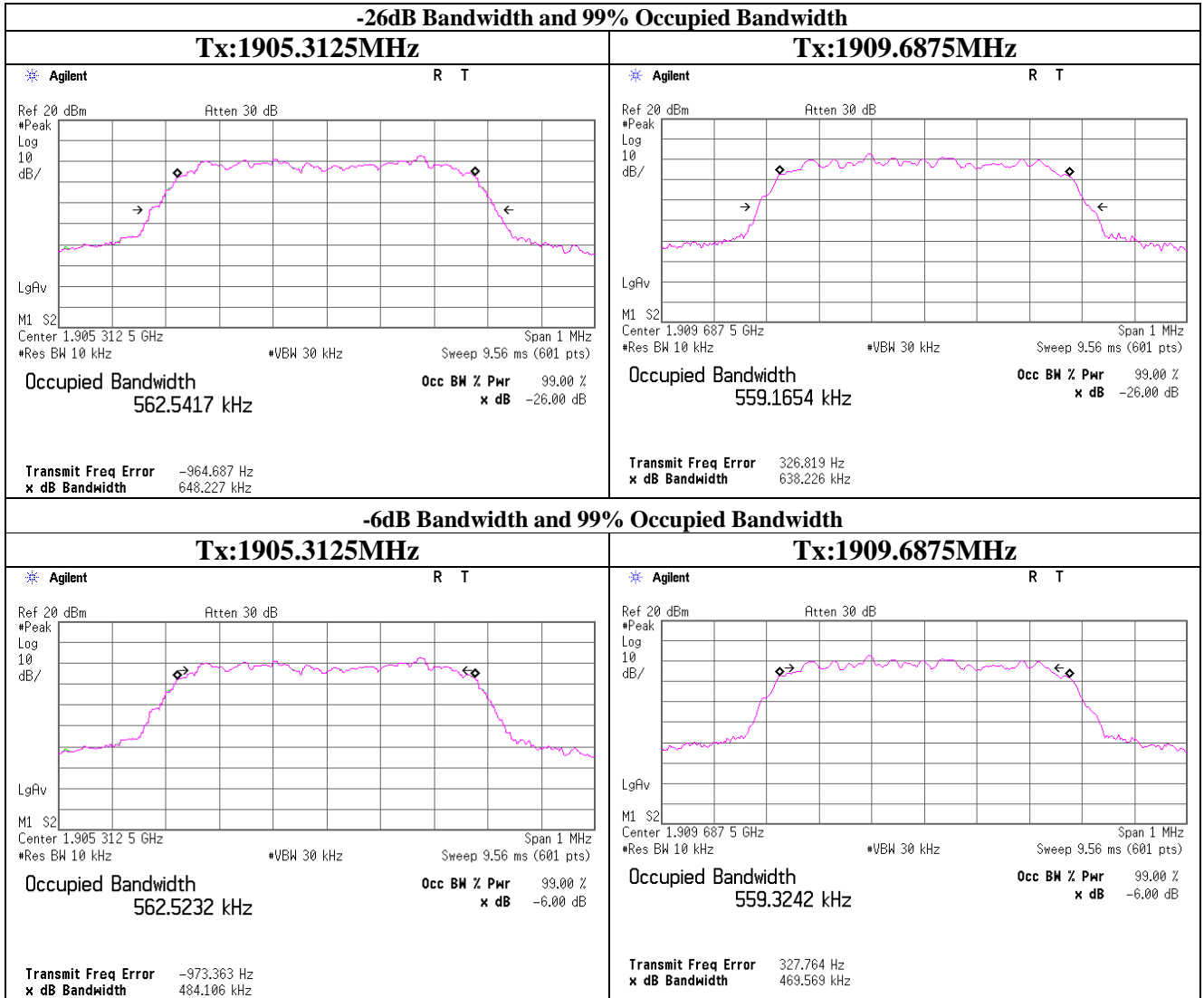
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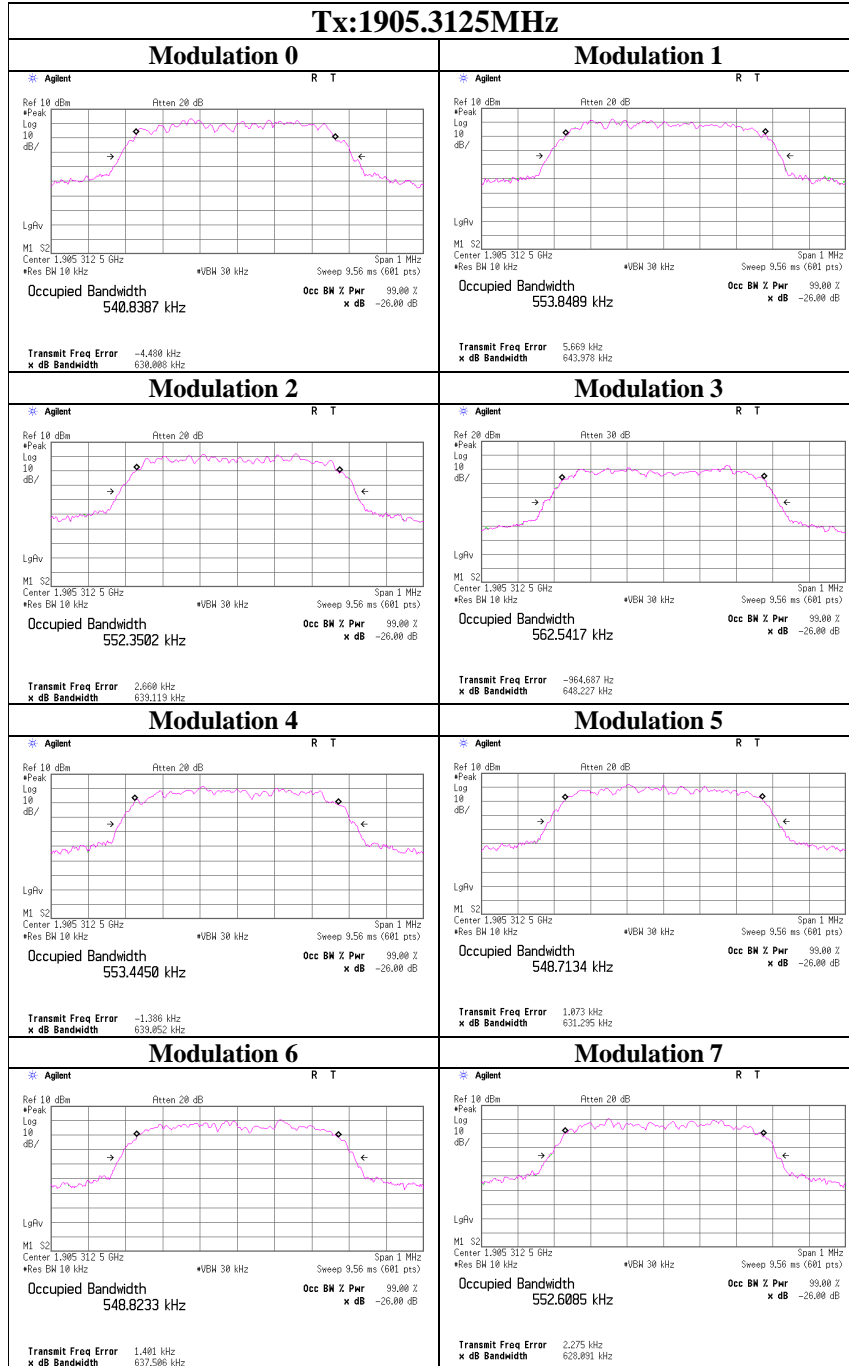
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Emission Bandwidth and 99% Occupied Bandwidth



Emission Bandwidth and 99% Occupied Bandwidth
 (Reference data)



Test report No. : 28LE0177-HO-A-R3
Page : 20 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
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Band Edge(Conducted)

(Reference data)

UL Japan, Inc.

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, Modulation 0 to 7, Slave(Worst)
(L: 1905.3125MHz, H: 1909.6875MHz)

Head Office EMC Lab. No.6 shielded room
Regulation FCC part 24 Section 24.238(a),(b)
Test Method FCC Part 2 Section 2.1051
Test Distance -
Date August 21, 2008
Temperature 27 deg.C.
Humidity 50 %
Engineer Kenichi Adachi

Modulation	Frequency [MHz]	S/A Reading [dBm]	Atten. Loss [dB]	Cable Loss [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]	
0	BPSK	1905.0000	-31.27	10.05	0.35	4.00	-16.87	-13.00	3.87
		1910.0000	-32.79	10.05	0.35	4.00	-18.39	-13.00	5.39
1	BPSK+	1905.0000	-29.19	10.05	0.35	4.00	-14.79	-13.00	1.79
		1910.0000	-31.63	10.05	0.35	4.00	-17.23	-13.00	4.23
2	QPSK	1905.0000	-29.98	10.05	0.35	4.00	-15.58	-13.00	2.58
		1910.0000	-32.76	10.05	0.35	4.00	-18.36	-13.00	5.36
3	QPSK+	1905.0000	-28.28	10.05	0.35	4.00	-13.88	-13.00	0.88
		1910.0000	-30.47	10.05	0.35	4.00	-16.07	-13.00	3.07
4	8PSK	1905.0000	-30.29	10.05	0.35	4.00	-15.89	-13.00	2.89
		1910.0000	-31.56	10.05	0.35	4.00	-17.16	-13.00	4.16
5	8PSK+	1905.0000	-30.82	10.05	0.35	4.00	-16.42	-13.00	3.42
		1910.0000	-34.84	10.05	0.35	4.00	-20.44	-13.00	7.44
6	12QAM	1905.0000	-30.35	10.05	0.35	4.00	-15.95	-13.00	2.95
		1910.0000	-32.07	10.05	0.35	4.00	-17.67	-13.00	4.67
7	16QAM	1905.0000	-33.92	10.05	0.35	4.00	-19.52	-13.00	6.52
		1910.0000	-33.99	10.05	0.35	4.00	-19.59	-13.00	6.59

Sample Calculation : Result = Reading + Atten. + Cable Loss + Antenna Gain

*The test result is round off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

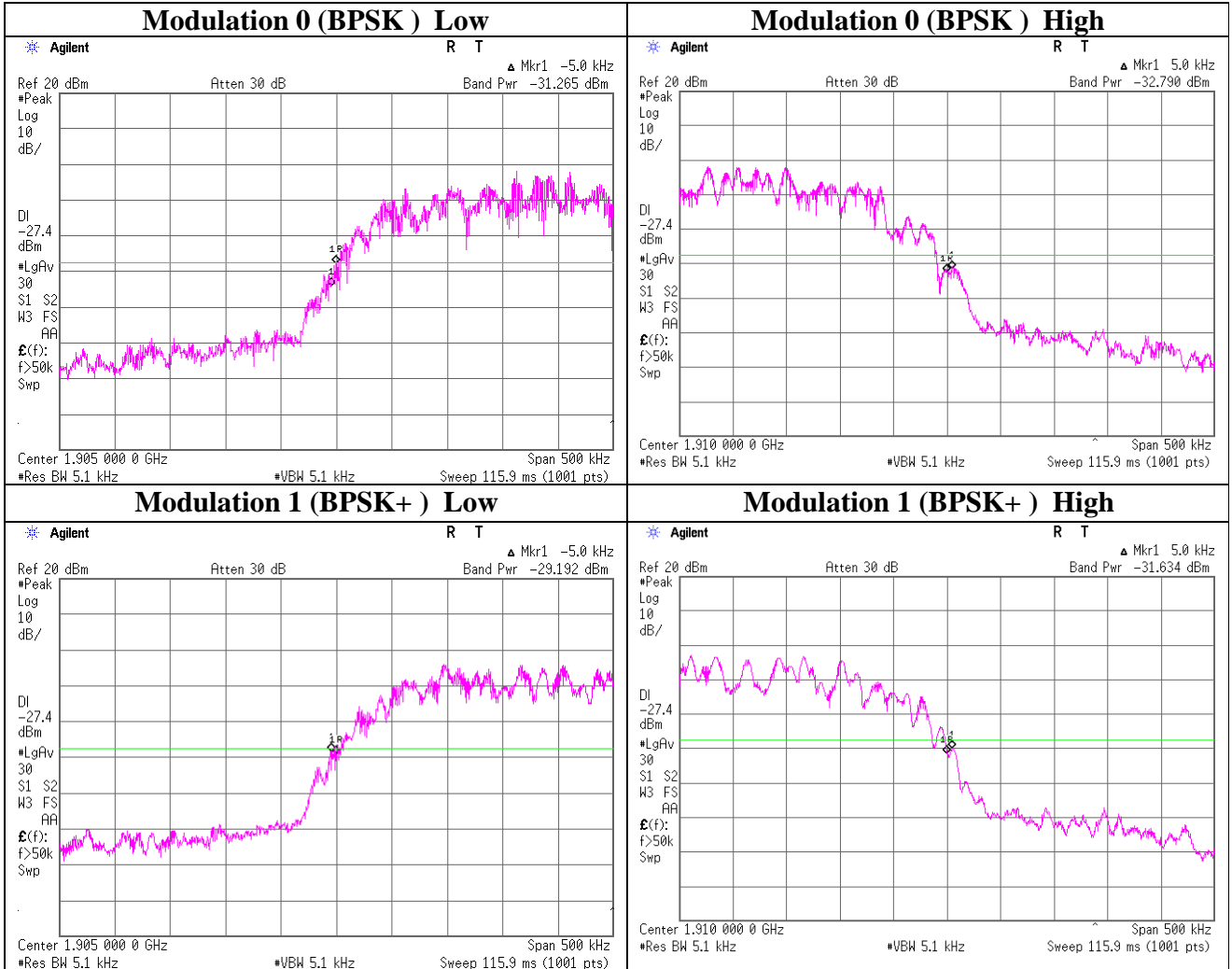
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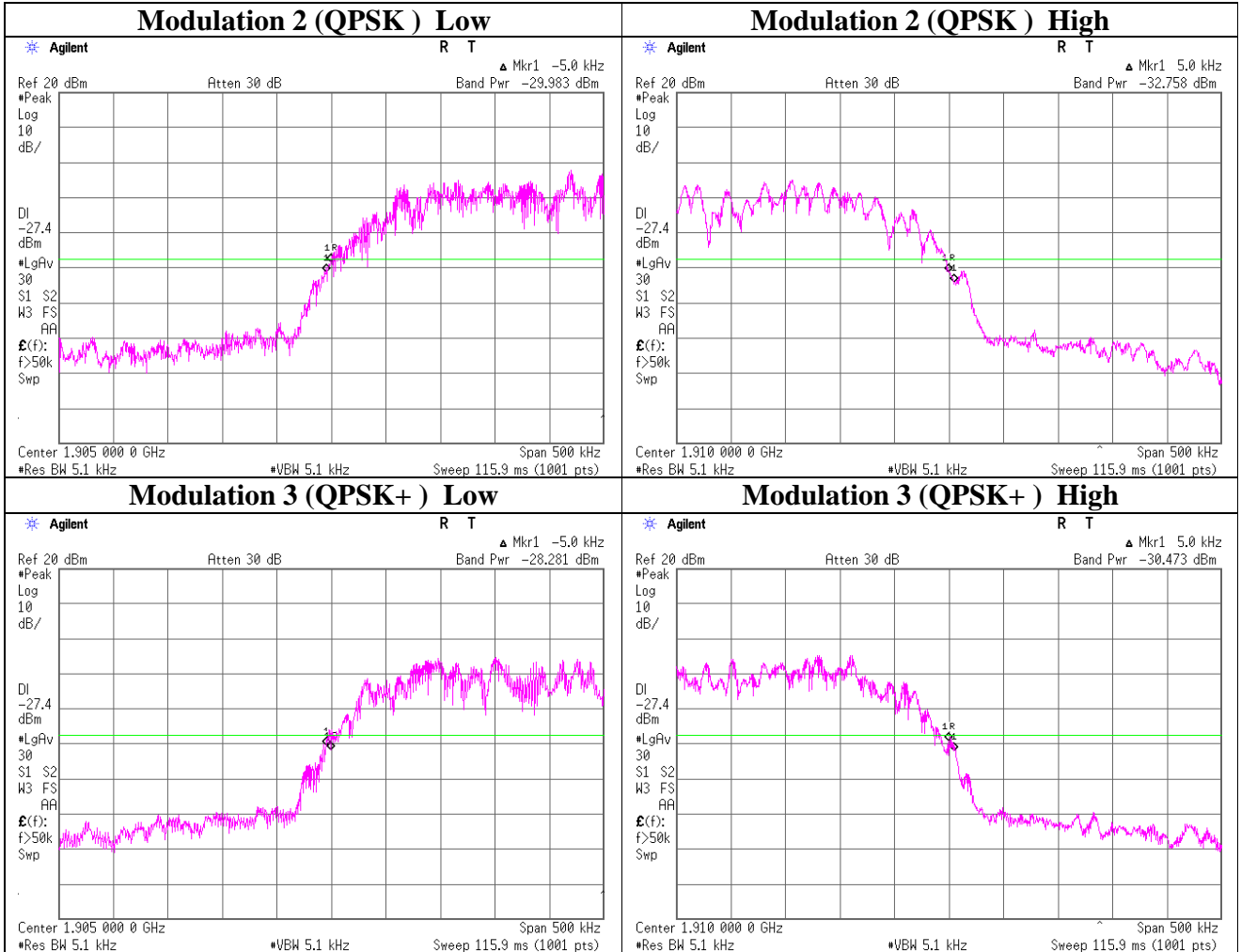
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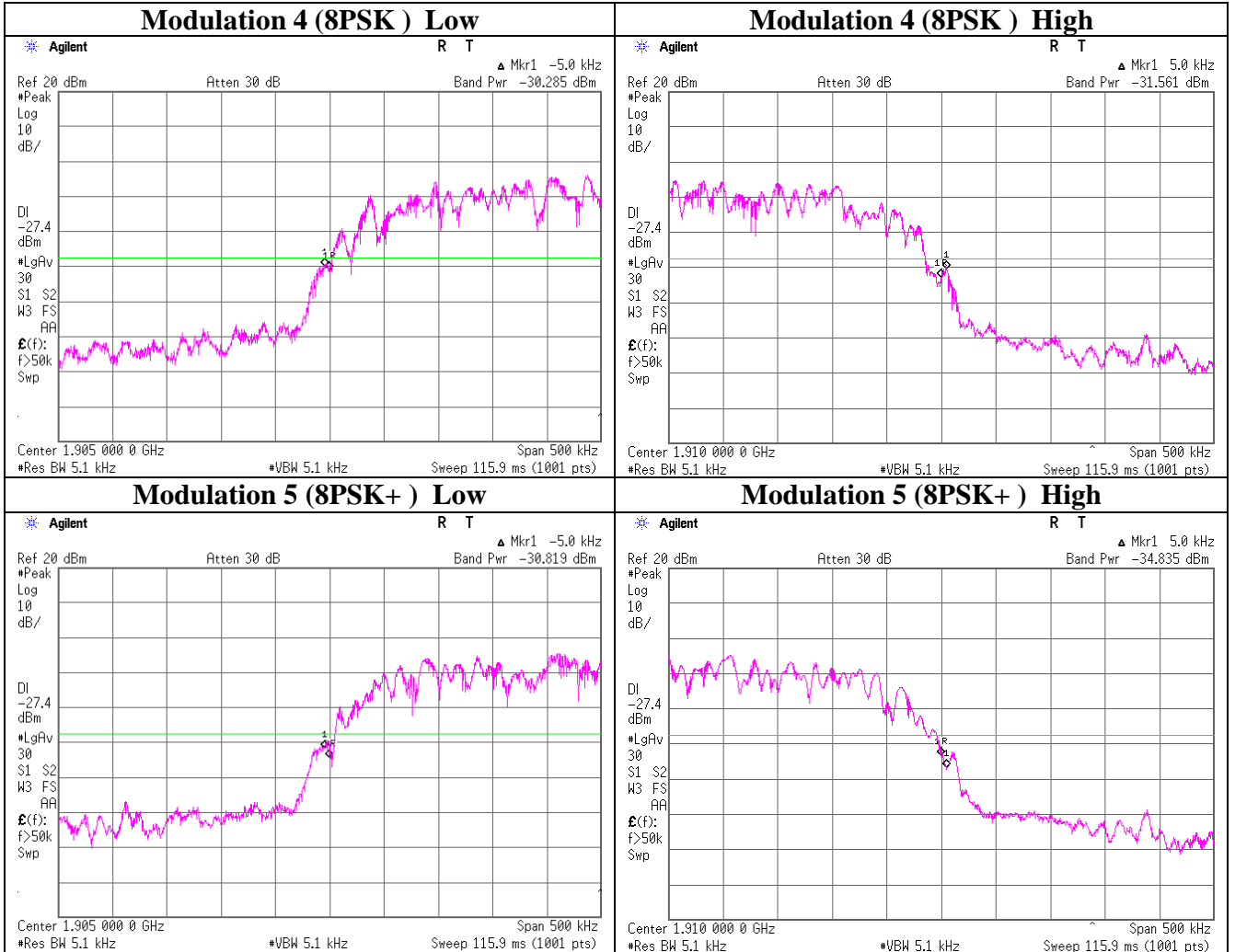
Band Edge(Conducted)
 (Reference data)



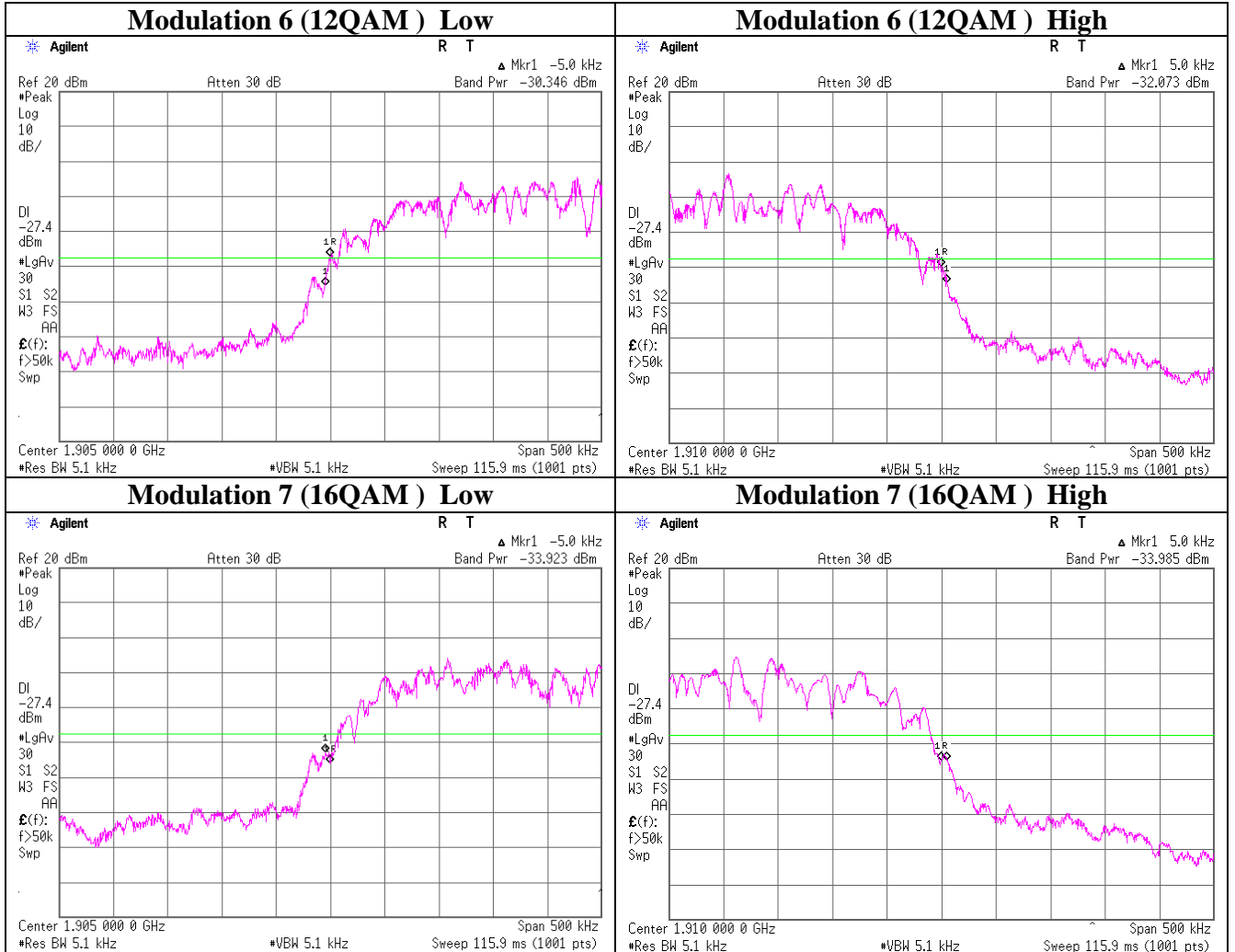
Band Edge(Conducted)
 (Reference data)



Band Edge(Conducted)
 (Reference data)



Band Edge(Conducted)
 (Reference data)



Test report No. : 28LE0177-HO-A-R3
Page : 25 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
FCC ID : JOYIUW19AA

Band Edge (Radiated)

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, Modulation 3 (Worst),
(L: 1905.3125MHz, H: 1909.6875MHz)
EUT-Position H: Y-axis / V: Y-axis
Antenna- Position H: 90deg. / V: 180deg.
Tx Antenna 0.8m Height

UL Japan, Inc.
Head Office EMC Lab. No.2 Semi Anechoic Chamber
Regulation FCC part 24. Section24.238(a),(b)
Test Method FCC part 2 Section 2.1053
Test Distance 3m
Date August 21, 2008
Temperature 23 deg.C.
Humidity 52 %
Engineer Kenichi Adachi

(1905MHz: Slave (Worst): Tx 1905.3125MHz / 1910MHz: Slave (Worst): Tx 1909.6875MHz)

No.	Frequency [MHz]	S/A Reading (Peak) [dBm]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Result EIRP [dBm]		LIMIT [dBm] (EIRP)	MARGIN [dB]		Remarks
		HOR	VER	HOR	VER			HOR	VER		HOR	VER	
		1	1905.00	-26.2	-27.7			-21.7	-23.2		2.2	10.0	
2	1910.00	-28.0	-30.9	-23.4	-26.3	2.2	10.0	-15.5	-18.4	-13.0	2.5	5.4	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain

*The test result is round off to one or two decimal places, so some differences might be observed.

Detector : S/A, Peak, RBW 5.1kHz, VBW5.1kHz, Sweep 5sec, Video Average mode 30times, Gate On mode.

(1905MHz: Master: Tx 1905.6875MHz and Slave: Tx 1905.3125MHz)

(1910MHz: Master: Tx 1909.3125MHz and Slave: Tx 1909.6875MHz)

No.	Frequency [MHz]	S/A Reading (Peak) [dBm]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Result EIRP [dBm]		LIMIT [dBm] (EIRP)	MARGIN [dB]		Remarks
		HOR	VER	HOR	VER			HOR	VER		HOR	VER	
		1	1905.00	-27.3	-28.1			-22.7	-23.4		2.2	10.0	
2	1910.00	-26.9	-29.5	-22.5	-25.0	2.2	10.0	-14.6	-17.1	-13.0	1.6	4.1	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain + Duty Factor

*The test result is round off to one or two decimal places, so some differences might be observed.

Detector : S/A, Peak, RBW 5.1kHz, VBW5.1kHz, Sweep 5sec, Video Average mode 30times, Gate On mode.

UL Japan, Inc.

Head Office EMC Lab.

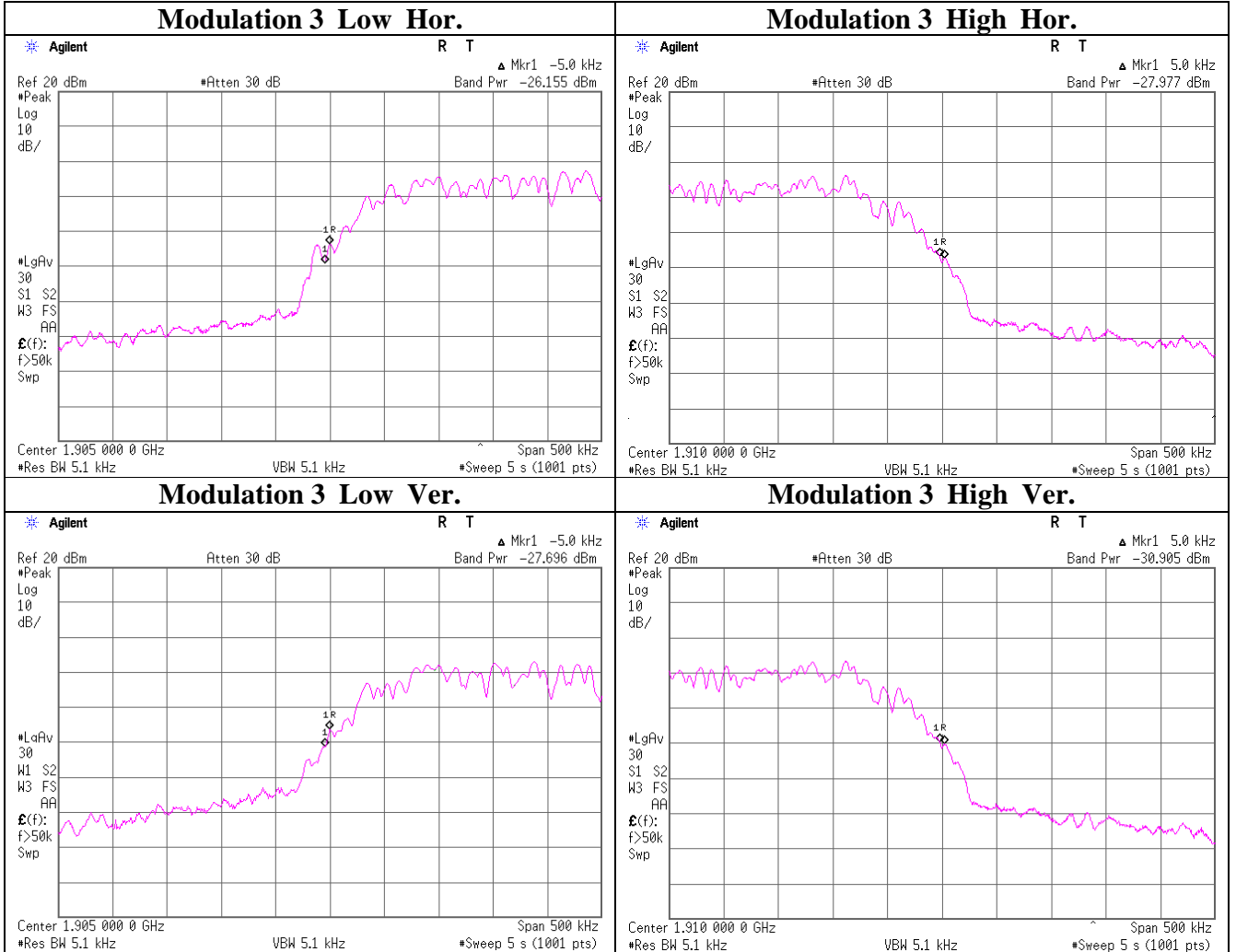
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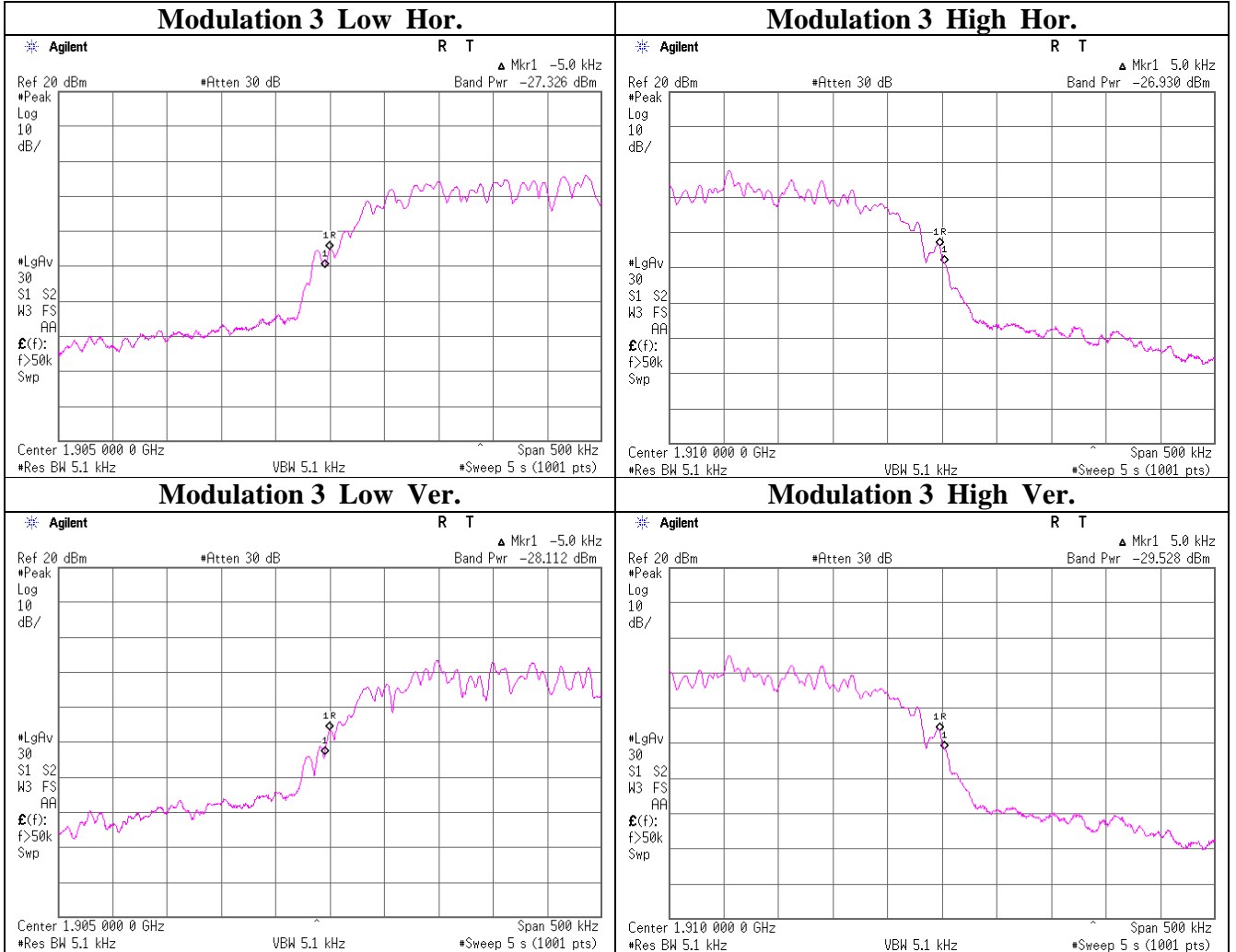
Band Edge(Radiated)

(1905MHz: Slave: Tx 1905.3125MHz / 1910MHz: Slave: Tx 1909.6875MHz)



Band Edge(Radiated)

(1905MHz: Master: 1905.6875MHz Tx and Slave: Tx 1905.3125MHz)
 (1910MHz: Master: Tx 1909.3125MHz and Slave: Tx 1909.6875MHz)



Spurious Emission (Conducted)

(Reference data)

UL Japan, Inc.
Head Office EMC Lab. No.7 shielded room

Company	KYOCERA Corporation	Regulation	FCC part 24 Section 24.238(a)
Equipment	iBurst User Terminal 2Mbps Desktop type	Test Method	FCC Part 2 Section 2.1051
Model	UTW1900D-US-A	Test Distance	-
S/N	0108EJ00005	Date	July 31, 2008
Power	AC 120V / 60Hz	Temperature	24 deg.C.
Mode	Transmitting, Modulation 7(Worst) , Slave(Worst) (L:1905.3125MHz, H:1909.6875MHz)	Humidity	57 %
		Engineer	Kenichi Adachi

PK DETECT(S/A : RBW 100kHz , VBW 300kHz, sweep time AUTO)

Limit Line

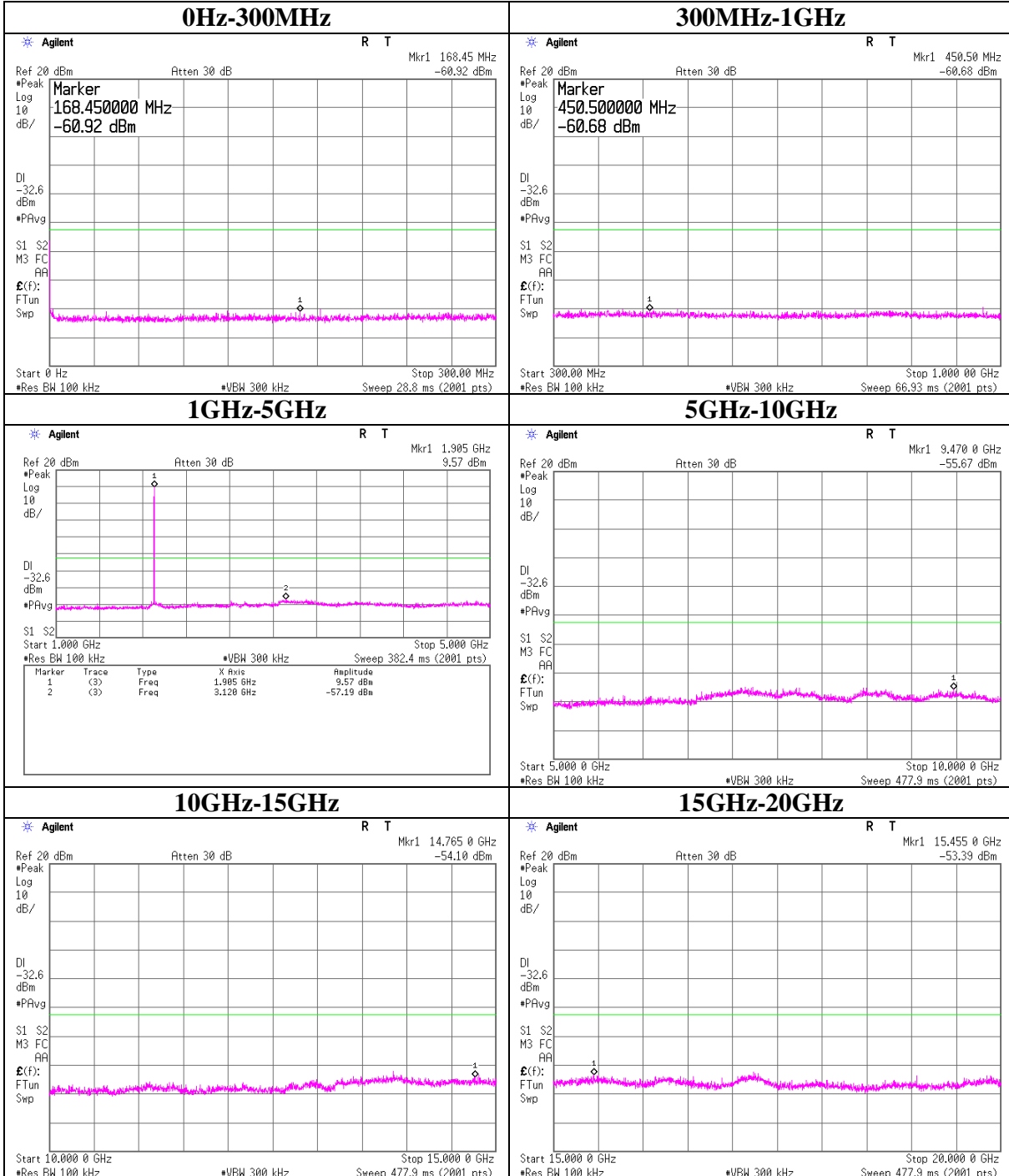
Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Limit Line [dBm]
-13.00	10.05	0.35	5.19	4.00	-32.59

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss - Duty Factor - Antenna Gain

Result OK

* Duty factor = $10 \times \log \left(\frac{5002 \text{ [us]}}{(504.5 \text{ [us]} + 504.5 \text{ [us]} + 504.5 \text{ [us]})} \right) = 5.19 \text{ [dB]}$

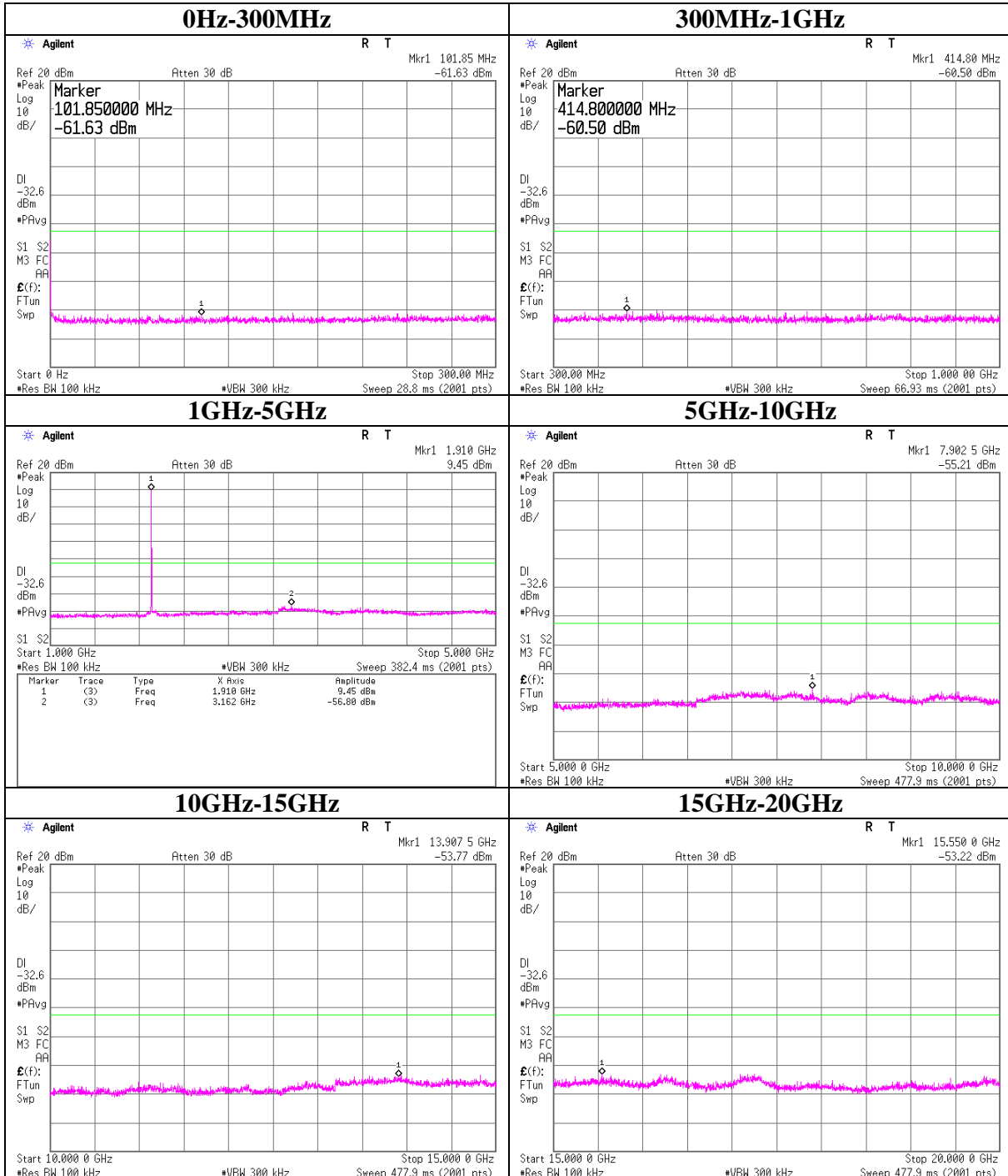
Spurious Emission (Conducted)
 (Reference data)
Tx:1905.3125MHz



Spurious Emission (Conducted)

(Reference data)

Tx:1909.6875MHz



UL Japan, Inc.

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Test report No. : 28LE0177-HO-A-R3
Page : 31 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
FCC ID : JOYIUW19AA

Spurious Radiated Emission
Slave(Worst), Tx, Lch, Mod7

Company : KYOCERA Corporation
Equipment : iBurst User Terminal 2Mbps Desktop type
Model : UTW1900D-US-A
S/N : 0108EJ00005
Power : AC 120V / 60Hz
Mode : Transmitting, 1905.3125MHz, Modulation 7 (Worst),
Slave(Worst)
EUT-Position : H: Y-axis / V: Y-axis
Antenna- Position : <Master> H: 0deg. / V: 0deg.
<Slave> H: 90deg. / V: 180deg.
Tx Antenna : 0.8m Height

UL Japan, Inc.
Head Office EMC Lab. No.4 Semi Anechoic Chamber
Regulation : FCC part 24. Section 24.238(a)
Test Method : FCC part 2 Section 2.1053
Test Distance : 3m (below 10GHz), 1m (above 10GHz)
Date : August 1, 2008
Temperature : 23 deg. C.
Humidity : 74 %
Engineer : Shinya Watanabe

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (EIRP) [dBm]		LIMIT [dBm] (EIRP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
		1	125.00	31.7	37.3				-57.2	-51.0		0.6	2.2			
2	325.30	43.0	38.5	-47.7	-46.6	1.1	2.2	9.7	-56.3	-55.3	-13.0	43.3	42.3	Operating	No4	
3	374.94	38.4	36.5	-52.7	-51.3	1.1	2.2	9.7	-61.4	-59.9	-13.0	48.4	46.9	Operating	No4	
4	612.01	39.6	41.3	-50.8	-46.9	1.4	2.2	10.1	-60.2	-56.2	-13.0	47.2	43.2	Operating	No4	
5	1704.66	64.2	61.4	-38.2	-41.7	3.6	8.8	0.0	-32.9	-36.5	-13.0	19.9	23.5	Operating	No4	
6	3608.17	47.8	42.7	-55.3	-60.1	5.3	12.4	0.0	-48.2	-53.0	-13.0	35.2	40.0	Operating	No4	
7	3810.63	60.9	60.4	-42.3	-42.2	5.4	12.7	0.0	-35.0	-34.8	-13.0	22.0	21.8	Operating	No4	
8	5715.94	57.4	59.3	-44.4	-43.3	6.8	13.3	0.0	-37.8	-36.7	-13.0	24.8	23.7	Operating	No4	
9	7621.25	68.2	66.2	-31.6	-34.8	8.0	11.5	0.0	-28.0	-31.3	-13.0	15.0	18.3	Operating	No4	
10	9526.56	68.1	68.9	-31.1	-32.8	8.9	11.5	0.0	-28.6	-30.2	-13.0	15.6	17.2	Operating	No4	
11	11431.88	68.1	66.0	-38.8	-41.6	9.6	11.7	0.0	-36.7	-39.5	-13.0	23.7	26.5	Operating	No4	
12	13337.19	88.4	80.8	-17.1	-26.2	10.3	12.7	0.0	-14.6	-23.8	-13.0	1.6	10.8	Operating	No4	
13	19053.13	67.0	70.2	-34.6	-30.7	13.1	14.7	0.0	-33.0	-29.1	-13.0	20.0	16.1	Operating	No4	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss
Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)
All other emissions were at least 20dB below the specification limit.
With the result above, the equivalent isotropic radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
*The test result is round off to one or two decimal places, so some differences might be observed.
Detector : Below 1GHz : S/A PK(RBW/VBW:1MHz), Above 1GHz : S/A PK(RBW/VBW:1MHz)

UL Japan, Inc.
Head Office EMC Lab.
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Spurious Radiated Emission
Slave(Worst), Tx, Hch, Mod7

Company	KYOCERA Corporation	UL Japan, Inc.	
Equipment	iBurst User Terminal 2Mbps Desktop type	Head Office EMC Lab. No.4 Semi Anechoic Chamber	
Model	UTW1900D-US-A	Regulation	FCC part 24. Section 24.238(a)
S/N	0108EJ00005	Test Method	FCC part 2 Section 2.1053
Power	AC 120V / 60Hz	Test Distance	3m (below 10GHz), 1m (above 10GHz)
Mode	Transmitting, 1909.6875MHz, Modulation 7 (Worst), Slave(Worst)	Date	August 1, 2008
EUT-Position	H: Y-axis / V: Y-axis	Temperature	23 deg. C.
Antenna- Position	<Master> H: 0deg. / V: 0deg. <Slave> H: 90deg. / V: 180deg.	Humidity	74 %
Tx Antenna	0.8m Height	Engineer	Shinya Watanabe

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (EIRP) [dBm]		LIMIT [dBm] (EIRP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
		1	125.00	31.7	33.8				-57.2	-54.5		0.6	2.2			
2	325.30	42.0	41.2	-48.7	-43.9	1.1	2.2	9.7	-57.3	-52.6	-13.0	44.3	39.6	Operating	No4	
3	374.94	37.6	36.9	-53.5	-50.9	1.1	2.2	9.7	-62.2	-59.5	-13.0	49.2	46.5	Operating	No4	
4	612.00	41.1	41.9	-49.3	-46.3	1.4	2.2	10.1	-58.7	-55.6	-13.0	45.7	42.6	Operating	No4	
5	1709.33	63.9	62.2	-38.5	-40.9	3.6	8.8	0.0	-33.2	-35.7	-13.0	20.2	22.7	Operating	No4	
6	3612.50	44.9	44.5	-58.2	-58.2	5.3	12.4	0.0	-51.1	-51.1	-13.0	38.1	38.1	Operating	No4	
7	3819.38	59.5	63.2	-43.7	-39.4	5.4	12.7	0.0	-36.4	-32.0	-13.0	23.4	19.0	Operating	No4	
8	5729.06	55.2	59.6	-46.6	-42.9	6.8	13.4	0.0	-40.0	-36.4	-13.0	27.0	23.4	Operating	No4	
9	7638.75	70.1	65.9	-29.6	-35.1	8.0	11.5	0.0	-26.1	-31.6	-13.0	13.1	18.6	Operating	No4	
10	9548.44	67.9	66.5	-31.3	-35.2	8.9	11.4	0.0	-28.8	-32.7	-13.0	15.8	19.7	Operating	No4	
11	13367.81	88.7	81.2	-16.9	-25.8	10.4	12.7	0.0	-14.6	-23.5	-13.0	1.6	10.5	Operating	No4	
12	19096.88	67.5	69.8	-34.1	-31.0	13.1	14.7	0.0	-32.5	-29.5	-13.0	19.5	16.5	Operating	No4	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss
Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)
All other emissions were at least 20dB below the specification limit.
With the result above, the equivalent isotropic radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
*The test result is round off to one or two decimal places, so some differences might be observed.
Detector : Below 1GHz : S/A PK(RBW/VBW:1MHz), Above 1GHz : S/A PK(RBW/VBW:1MHz)

Test report No. : 28LE0177-HO-A-R3
Page : 33 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
FCC ID : JOYIUW19AA

Spurious Radiated Emission
Slave, Tx 1905.3125MHz, Mod7,
Master, Tx 1905.6875MHz, Mod7

UL Japan, Inc.

Head Office EMC Lab. No.4 Semi Anechoic Chamber
Regulation FCC part 24. Section 24.238(a)
Test Method FCC part 2 Section 2.1053
Test Distance 3m (below 10GHz), 1m (above 10GHz)
Date August 1, 2008
Temperature 23 deg. C.
Humidity 74 %
Engineer Shinya Watanabe

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, 1905.3125MHz, Modulation 7 (Worst),
Slave(Worst)
Transmitting, 1905.6875MHz, Modulation 7 (Worst),
Master
EUT-Position H: Y-axis / V: Y-axis
Antenna- Position <Master> H: 90deg. / V: 180deg.
<Slave> H: 90deg. / V: 180deg.
Tx Antenna 0.8m Height

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (EIRP) [dBm]		LIMIT (EIRP) [dBm]	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
		1	125.00	32.5	37.0				-56.4	-51.3		0.6	2.2			
2	325.00	45.3	40.5	-45.4	-44.6	1.1	2.2	9.7	-54.0	-53.3	-13.0	41.0	40.3	Operating	No4	
3	375.07	38.4	37.6	-52.7	-50.2	1.1	2.2	9.7	-61.4	-58.9	-13.0	48.4	45.9	Operating	No4	
4	612.01	38.7	40.9	-51.7	-47.3	1.4	2.2	10.1	-61.1	-56.6	-13.0	48.1	43.6	Operating	No4	
5	1704.66	64.2	61.9	-38.2	-41.2	3.6	8.8	0.0	-32.9	-36.0	-13.0	19.9	23.0	Operating	No4	
6	3810.63	63.5	60.3	-39.7	-42.3	5.4	12.7	0.0	-32.4	-34.9	-13.0	19.4	21.9	Operating	No4	
7	5715.94	62.5	62.1	-39.3	-40.5	6.8	13.3	0.0	-32.7	-33.9	-13.0	19.7	20.9	Operating	No4	
8	7621.25	69.0	68.3	-30.8	-32.7	8.0	11.5	0.0	-27.2	-29.2	-13.0	14.2	16.2	Operating	No4	
9	9526.56	66.0	66.6	-33.2	-35.1	8.9	11.5	0.0	-30.7	-32.5	-13.0	17.7	19.5	Operating	No4	
10	13337.19	88.5	80.3	-17.0	-26.7	10.3	12.7	0.0	-14.5	-24.3	-13.0	1.5	11.3	Operating	No4	
11	19053.13	69.0	67.7	-32.6	-33.2	13.1	14.7	0.0	-31.0	-31.6	-13.0	18.0	18.6	Operating	No4	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperriodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

All other emissions were at least 20dB below the specification limit.

With the result above, the equivalent isotropic radiated power was calculated on the basis of the reference value

- for the calibration data on the substitution measurement.

*The test result is round off to one or two decimal places, so some differences might be observed.

Detector : Below 1GHz : S/A PK(RBW/VBW:1MHz), Above 1GHz : S/A PK(RBW/VBW:1MHz)

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Test report No. : 28LE0177-HO-A-R3
Page : 34 of 37
Issued date : August 8, 2008
Revised date : September 19, 2008
FCC ID : JOYIUW19AA

Spurious Radiated Emission
Slave, Tx 1909.6875MHz, Mod7,
Master, Tx 1909.3125MHz, Mod7

UL Japan, Inc.

Head Office EMC Lab. No.4 Semi Anechoic Chamber
Regulation FCC part 24. Section 24.238(a)
Test Method FCC part 2 Section 2.1053
Test Distance 3m (below 10GHz), 1m (above 10GHz)
Date August 1, 2008
Temperature 23 deg. C.
Humidity 74 %
Engineer Shinya Watanabe

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, 1909.6875MHz, Modulation 7 (Worst),
Slave(Worst)
Transmitting, 1909.3125MHz, Modulation 7 (Worst),
Master
EUT-Position H: Y-axis / V: Y-axis
Antenna- Position <Master> H: 90deg. / V: 180deg.
<Slave> H: 90deg. / V: 180deg.
Tx Antenna 0.8m Height

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (EIRP) [dBm]		LIMIT [dBm]	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
		1	125.00	31.9	38.7				-57.0	-49.6		0.6	2.2			
2	325.00	48.6	44.7	-42.1	-40.4	1.1	2.2	9.7	-50.7	-49.1	-13.0	37.7	36.1	Operating	No4	
3	375.07	38.2	40.6	-52.9	-47.2	1.1	2.2	9.7	-61.6	-55.9	-13.0	48.6	42.9	Operating	No4	
4	612.00	40.6	40.9	-49.8	-47.3	1.4	2.2	10.1	-59.2	-56.6	-13.0	46.2	43.6	Operating	No4	
5	1709.33	62.2	61.1	-40.2	-42.0	3.6	8.8	0.0	-34.9	-36.8	-13.0	21.9	23.8	Operating	No4	
6	3819.38	62.5	57.0	-40.7	-45.6	5.4	12.7	0.0	-33.4	-38.2	-13.0	20.4	25.2	Operating	No4	
7	5729.06	61.5	60.1	-40.3	-42.4	6.8	13.4	0.0	-33.7	-35.9	-13.0	20.7	22.9	Operating	No4	
8	7638.75	69.3	73.1	-30.4	-27.9	8.0	11.5	0.0	-26.9	-24.4	-13.0	13.9	11.4	Operating	No4	
9	9548.44	67.3	64.8	-31.9	-36.9	8.9	11.4	0.0	-29.4	-34.4	-13.0	16.4	21.4	Operating	No4	
10	13367.81	88.6	80.9	-17.0	-26.1	10.4	12.7	0.0	-14.7	-23.8	-13.0	1.7	10.8	Operating	No4	
11	19096.88	66.2	66.6	-35.4	-34.2	13.1	14.7	0.0	-33.8	-32.7	-13.0	20.8	19.7	Operating	No4	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperriodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

All other emissions were at least 20dB below the specification limit.

With the result above, the equivalent isotropic radiated power was calculated on the basis of the reference value

- for the calibration data on the substitution measurement.

*The test result is round off to one or two decimal places, so some differences might be observed.

Detector : Below 1GHz : S/A PK(RBW/VBW:1MHz), Above 1GHz : S/A PK(RBW/VBW:1MHz)

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Frequency Stability(Temperature/Voltage Variation)

Company KYOCERA Corporation
Equipment iBurst User Terminal 2Mbps Desktop type
Model UTW1900D-US-A
S/N 0108EJ00005
Power AC 120V / 60Hz
Mode Transmitting, 1909.6875MHz , Slave Modulation 7

UL Japan, Inc.
Head Office EMC Lab. No.7 shielded room
Regulation FCC part 24 Section 24.235
Test Method FCC Part 2 Section 2.1055(a)(1) and (b)
FCC Part 2 Section 2.1055(d)(1)
Test Distance -
Date July 31, 2008
Temperature 24 deg.C.
Humidity 57 %
Engineer Kenichi Adachi

Temp. [deg.C]	Volt. [V]	Frequency Deviation [Hz]	Frequency Result [MHz]	Frequency Deviation [ppm]	Limit [ppm]
-30	120.0	10.68	1909.687511	0.0056	+/- 2.500
-20	120.0	-59.28	1909.687441	-0.0310	+/- 2.500
-10	120.0	-65.13	1909.687435	-0.0341	+/- 2.500
0	120.0	-44.93	1909.687455	-0.0235	+/- 2.500
10	120.0	23.51	1909.687524	0.0123	+/- 2.500
20	120.0	-12.57	1909.687487	-0.0066	+/- 2.500
30	120.0	-36.39	1909.687464	-0.0191	+/- 2.500
40	120.0	-23.62	1909.687476	-0.0124	+/- 2.500
50	120.0	-35.00	1909.687465	-0.0183	+/- 2.500

Temp. [deg.C]	Volt. [V]	Frequency Deviation [Hz]	Frequency Result [MHz]	Frequency Deviation [ppm]	Limit [ppm]
20	102.0	-17.82	1909.687482	-0.0093	+/- 2.500
20	120.0	-12.57	1909.687487	-0.0066	+/- 2.500
20	138.0	-29.35	1909.687471	-0.0154	+/- 2.500

* "Frequency Deviation [Hz]" was average of 5 times measurement value.

APPENDIX 3: Test instruments

EMI test equipment (1 / 2)

Control No	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MPM-09	Power Meter	Anritsu	ML2495A	AT / RE	2007/09/22 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	AT / RE	2007/09/22 * 12
MAT-21	Attenuator(20dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	AT	2008/01/09 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT / RE	2008/05/30 * 12
MAT-25	Attenuator(10dB)(above1GHz)	Agilent	8493C	AT / RE	2008/06/25 * 12
MCC-93	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	AT / FT	2008/05/16 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2007/11/12 * 12
MRENT-71	Vector Signal Analyzer	Agilent/HP	HP89441A/AX4,AYA,U FG	FT	Pre Check
MCC-94	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	FT	2008/05/16 * 12
MCC-95	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	FT	2008/05/16 * 12
MCC-96	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	FT	2008/05/19 * 12
MCC-06	Microwave Cable 1G-26.5GHz 1m	Suhner	SUCOFLEX 104	FT	2008/02/05 * 12
MCH-01	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	FT	2007/12/27 * 12
MMM-14	DIGITAL HiTESTER	Hioki	3805	FT	2008/06/05 * 12
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/03/27 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE	2008/01/10 * 12
MJM-07	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2007/08/16 * 12
MCC-57	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/03/05 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	RE	2008/03/13 * 12
MSG-05	Signal Generator	Agilent	E4438C	RE	2008/06/26 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/01/19 * 12
MCC-48	Microwave Cable 1G-26.5GHz 7m	Suhner	SUCOFLEX102	RE	2007/08/27 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	RE	2008/04/30 * 12
MHF-20	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCC	RE	2007/12/10 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2007/12/26 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/01/12 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	RE	2008/01/12 * 12
MCC-50	Coaxial cable	UL Japan	-	RE	2008/03/17 * 12
MAT-31	Attenuator(6dB)	TME	UFA-01	RE	2008/03/10 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2008/03/06 * 12

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EMI test equipment (2 / 2)

Control No	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/04/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	RE	2007/12/27 * 12
MJM-05	Measure	PROMART	SEN1955	RE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	RE	2007/11/27 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2008/01/19 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/05/12 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2007/09/27 * 12
MAT-22	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	RE	2008/03/04 * 12
MSG-03	Signal Generator	Rohde & Schwarz	SML03	RE	2007/10/10 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/04/23 * 12
MCC-18	Microwave Cable 1G-26.5GHz 5m	Suhner	SUCOFLEX 104	RE	2008/02/08 * 12
MCC-93	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	AT	2008/05/16 * 12
MAT-25	Attenuator(10dB)(above1GHz)	Agilent	8493C	AT	2008/06/25 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-180	AT	2008/01/10 * 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 :

RE: Output Power(Radiated), Band Edge(Radiated), Spurious emission (Radiated)

AT: Output Power(Conducted), Band Edge(Condcuted), Spurious emission (Conducted), Bandwidth

FT: Frequency Stability

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