

APPENDIX 2: Data of EMI test

Conducted Emission

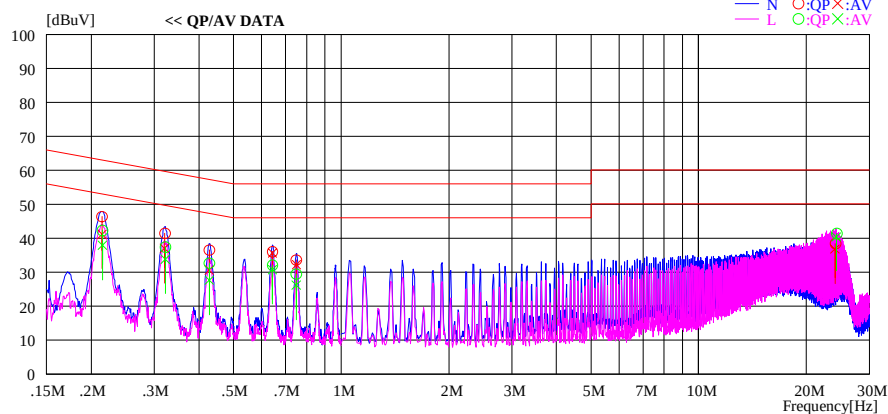
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/06/23 17:01:18

Applicant : KEYENCE CORPORATION
Kind of EUT : Wireless Barcode Reader (Cradle)
Model No. : BL-N9UB
Serial No. : 5506300451
Report No. : 26IE0265-HO
Power : AC 120V / 60Hz
Temp./Humi. : 25deg. C / 62%
Operator : Hiroka Umeyama

Mode / Remarks : Transmitting-Receiving

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.21447	46.2	40.9	0.2	46.4	41.1	63.0	53.0	16.6	11.9	N	
0.32075	41.1	36.6	0.3	41.4	36.9	59.7	49.7	18.3	12.8	N	
0.42789	36.2	30.3	0.3	36.5	30.6	57.3	47.3	20.8	16.7	N	
0.64233	35.8	35.3	0.3	36.1	35.6	56.0	46.0	19.9	10.4	N	
0.74935	33.2	31.9	0.3	33.5	32.2	56.0	46.0	22.5	13.8	N	
24.08038	37.0	35.3	1.4	38.4	36.7	60.0	50.0	21.6	13.3	N	
0.21510	42.1	37.6	0.2	42.3	37.8	63.0	53.0	20.7	15.2	L	
0.32231	37.1	33.4	0.3	37.4	33.7	59.6	49.6	22.2	15.9	L	
0.42812	32.3	27.2	0.3	32.6	27.5	57.3	47.3	24.7	19.8	L	
0.64269	31.7	30.4	0.3	32.0	30.7	56.0	46.0	24.0	15.3	L	
0.74897	29.1	25.8	0.3	29.4	26.1	56.0	46.0	26.6	19.9	L	
24.29442	39.9	39.0	1.4	41.3	40.4	60.0	50.0	18.7	9.6	L	

CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(L1SN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

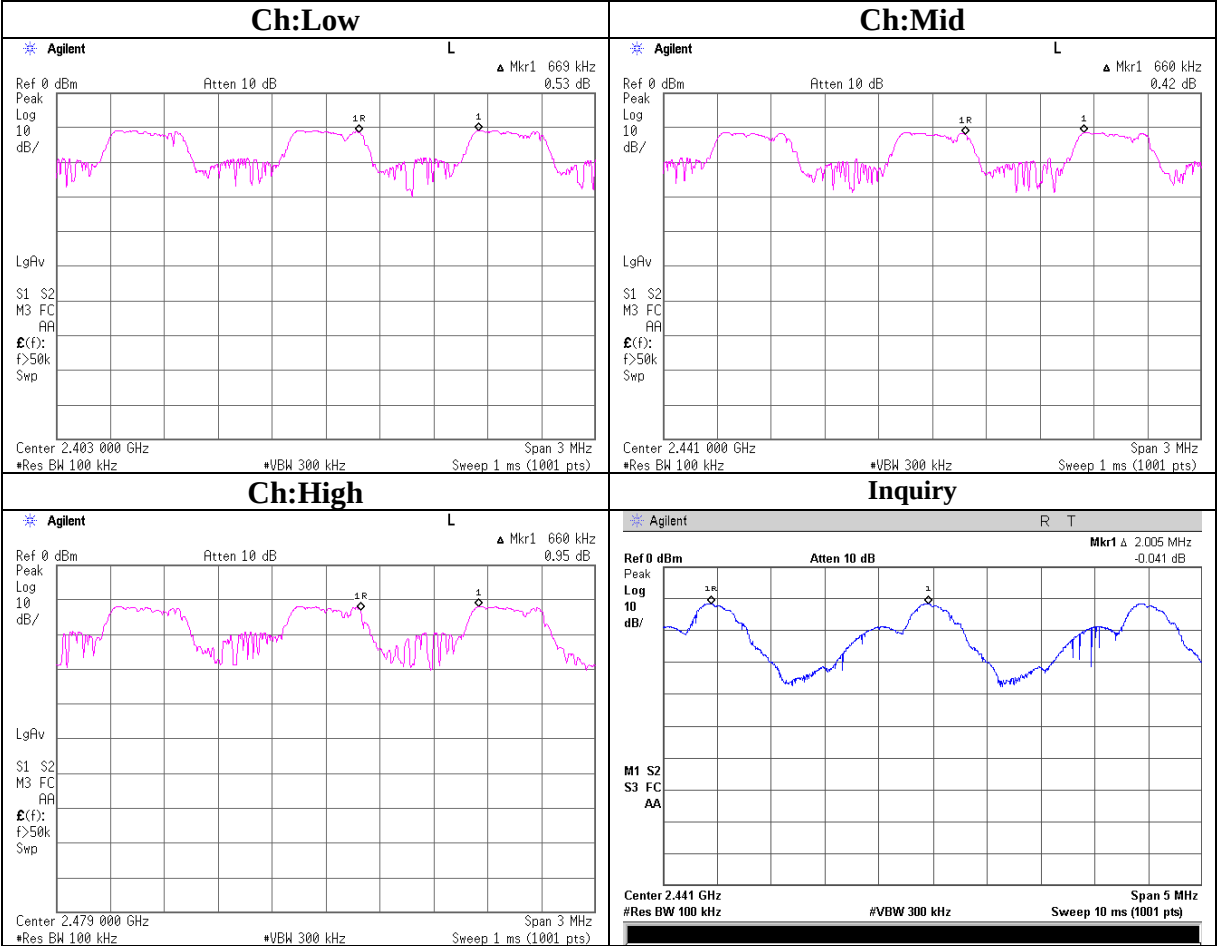
Carrier Frequency Separation

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

COMPANY	: KEYENCE CORPORATION	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Wireless Barcode Reader (Cradle)	TEST DISTANCE	: -
MODEL	: BL-N9UB	DATE	: 08/29/2006, 08/30/2006
S/ N	: 000ca702bb55	TEMPERATURE	: 26deg.C(8/29), 24deg.C(8/30)
POWER	: AC120V/60Hz	HUMIDITY	: 66%(8/29), 67%(8/30)
MODE	: Tx(Hopping on)/Inquiry	ENGINEER	: Hiroka Umeyama

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	0.669	>0.584(two-thirds of 0.879 [MHz] (20dB Bandwidth))
Mid	2441.0	0.660	>0.566(two-thirds of 0.846 [MHz] (20dB Bandwidth))
High	2480.0	0.660	>0.630(two-thirds of 0.945[MHz] (20dB Bandwidth))
Inquiry	2441.0	2.005	>0.738(two-thirds of 1.107 [MHz] (20dB Bandwidth))

Carrier Frequency Separation



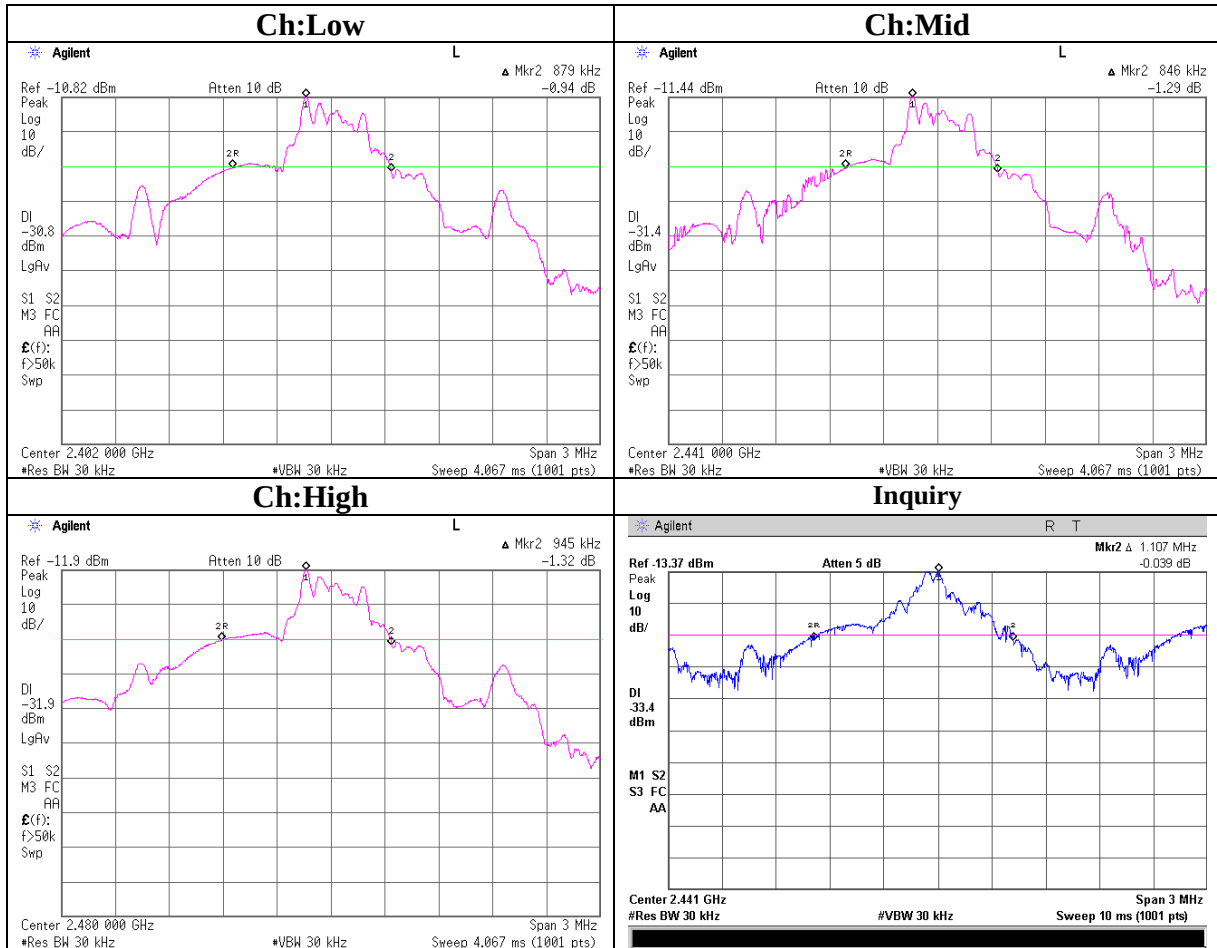
20dB Bandwidth

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

COMPANY	: KEYENCE CORPORATION	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Wireless Barcode Reader (Cradle)	TEST DISTANCE	: -
MODEL	: BL-N9UB	DATE	: 08/29/2006, 08/30/2006
S/ N	: 000ca702bb55	TEMPERATURE	: 26deg.C(8/29), 24deg.C(8/30)
POWER	: AC120V/60Hz	HUMIDITY	: 66%(8/29), 67%(8/30)
MODE	: Tx (Hopping off) /Inquiry	ENGINEER	: Hiroka Umeyama

Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.879	-
Mid	2441.0	0.846	-
High	2480.0	0.945	-
Inquiry	2441.0	1.107	-

20dB Bandwidth



Number of Hopping Frequency

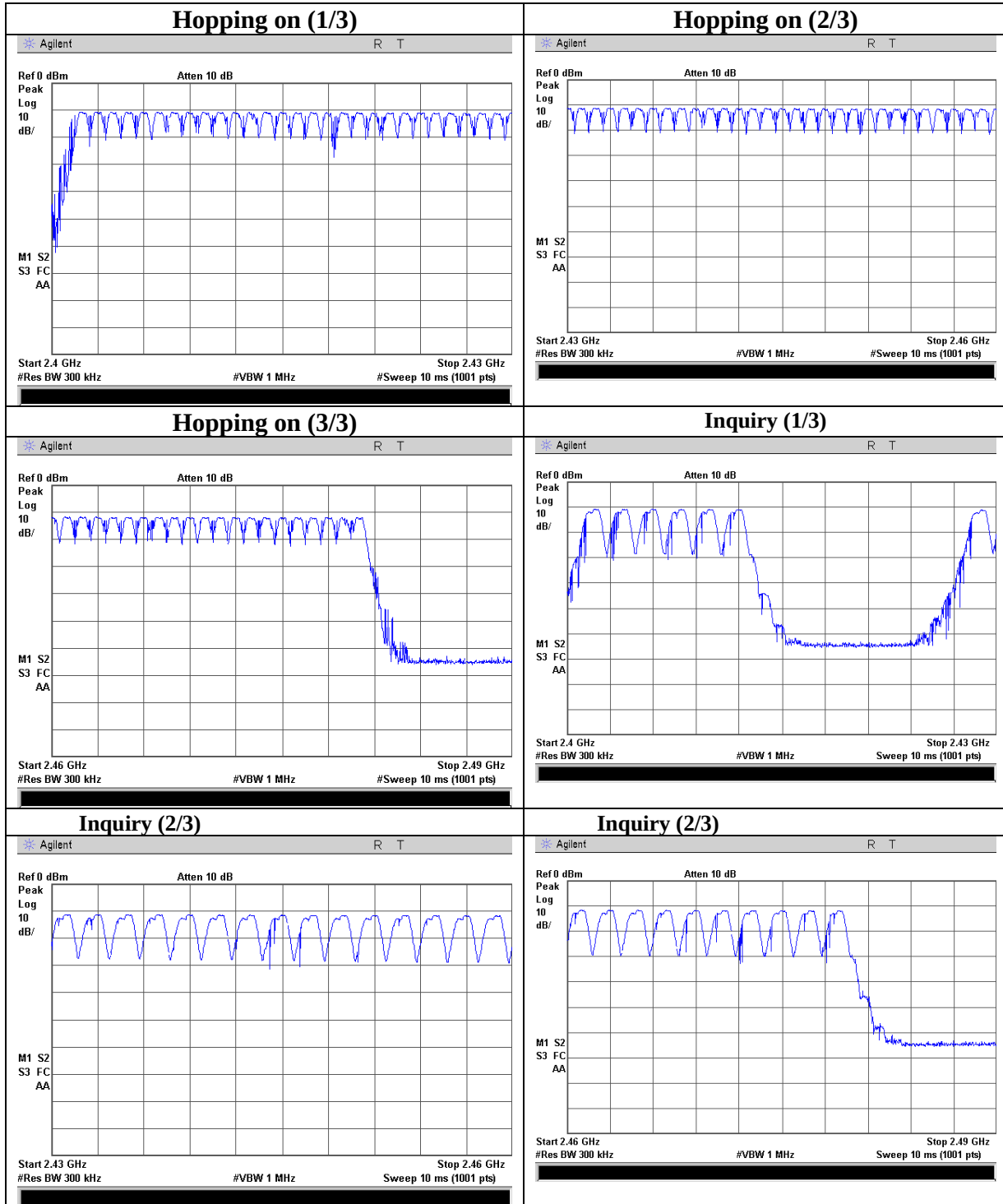
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Shielded Room

COMPANY : KEYENCE CORPORATION REGULATION : FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT : Wireless Barcode Reader (Cradle) TEST DISTANCE : -
MODEL : BL-N9UB DATE : 08/29/2006
S/ N : 000ca702bb55 TEMPERATURE : 26deg.C
POWER : AC120V/60Hz HUMIDITY : 66%
MODE : Tx (Hopping on) /Inquiry ENGINEER : Hiroka Umeyama

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

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

Number of Hopping Frequency



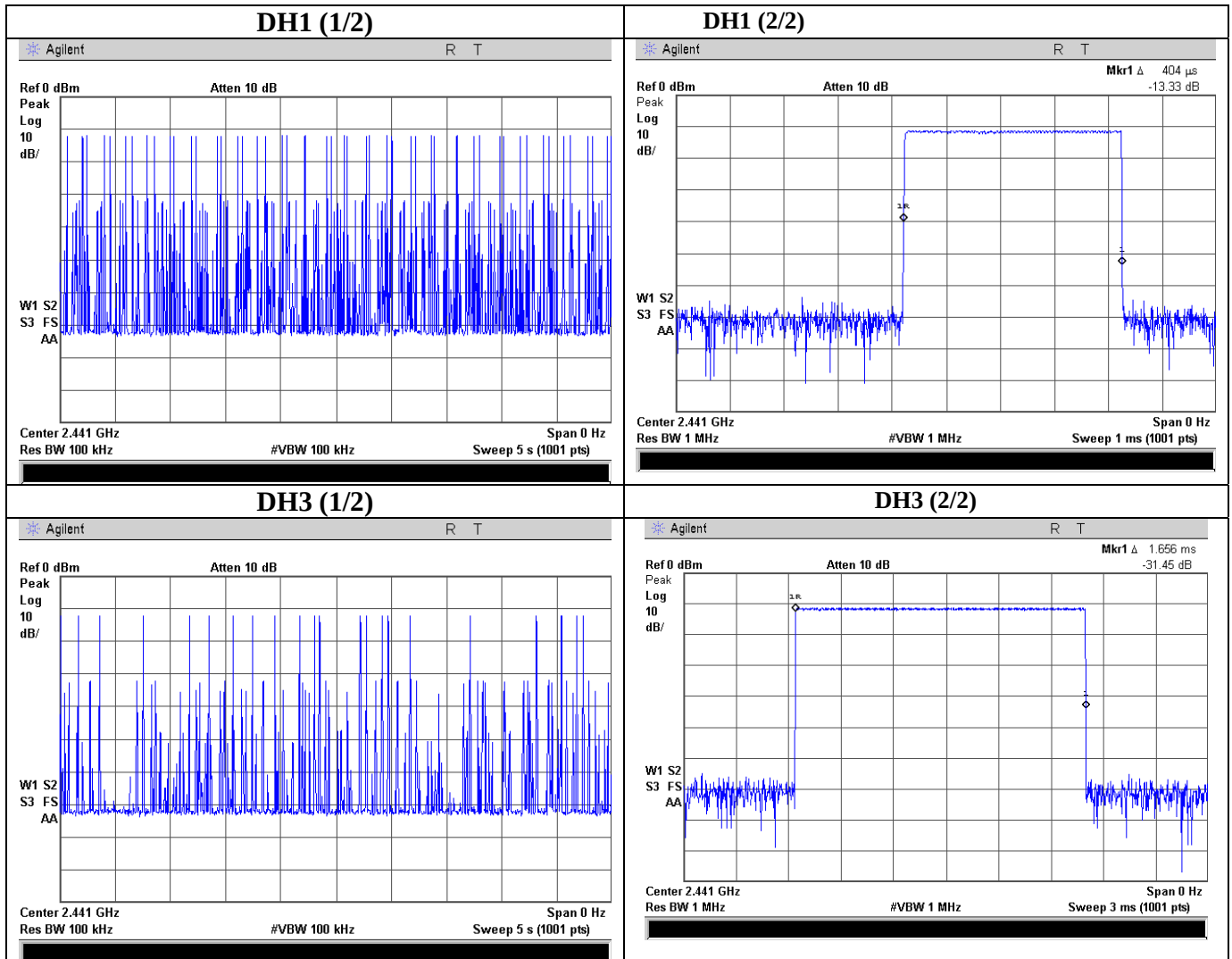
Dwell time

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

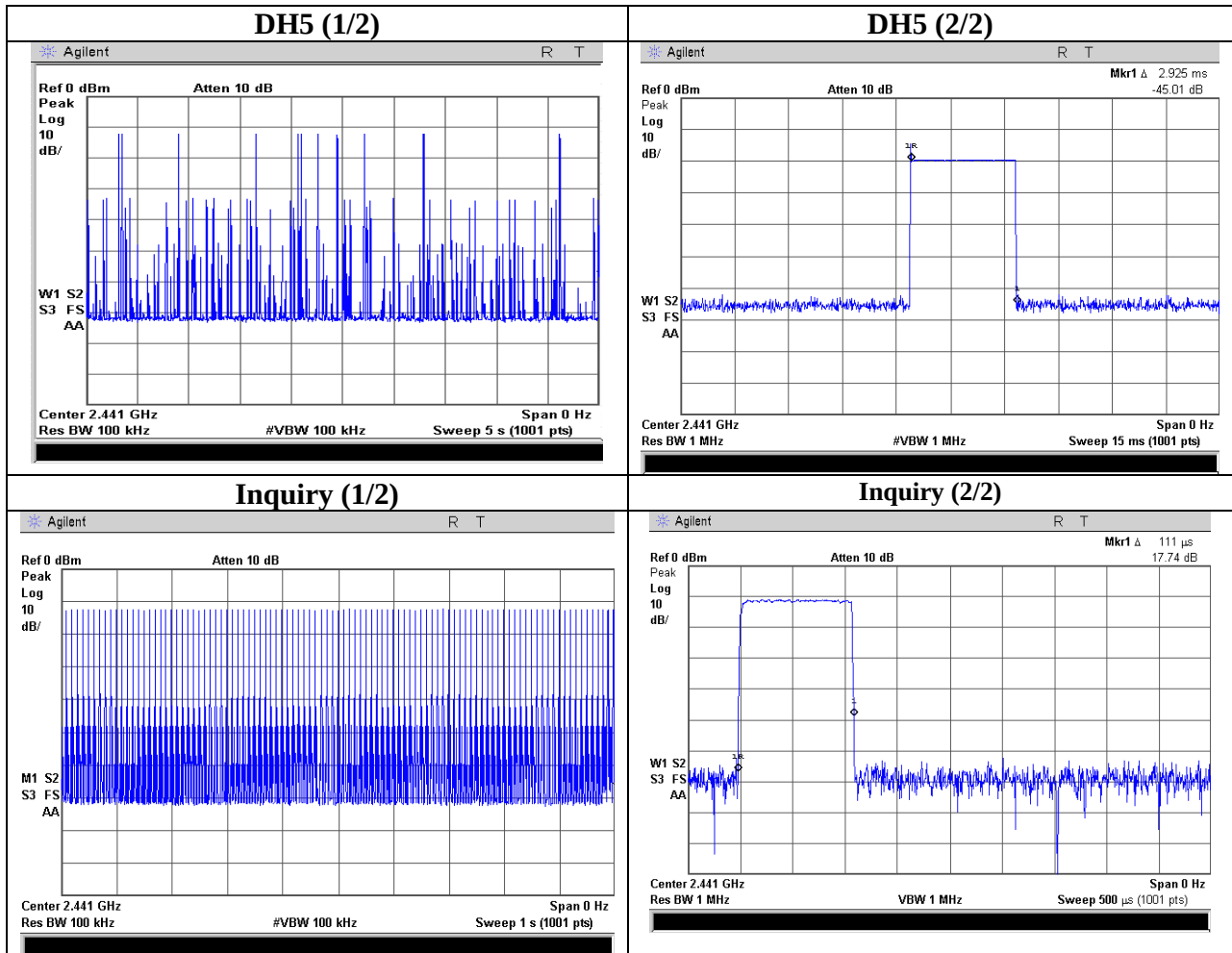
COMPANY	: KEYENCE CORPORATION	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: Wireless Barcode Reader (Cradle)	TEST DISTANCE	: -
MODEL	: BL-N9UB	DATE	: 08/29/2006
S/ N	: 000ca702bb55	TEMPERATURE	: 26deg.C
POWER	: AC120V/60Hz	HUMIDITY	: 66%
MODE	: Tx (Hopping on) /Inquiry	ENGINEER	: Hiroka Umeyama

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	48 times / 5 sec. x 31.6 sec. = 303 times	0.404	123	400
DH3	22 times / 5 sec. x 31.6 sec. = 139 times	1.656	230	400
DH5	11 times / 5 sec. x 31.6 sec. = 70 times	2.925	203	400
Inquiry	100 times / 1 sec. x 12.8 sec. = 1280 times	0.111	142	400

Dwell time



Dwell time



Maximum Peak Output Power

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

COMPANY	: KEYENCE CORPORATION	REGULATION	: FCC Part15 Subpart C 15.247(b)(1)
EQUIPMENT	: Wireless Barcode Reader (Cradle)	TEST DISTANCE	: -
MODEL	: BL-N9UB	DATE	: 08/29/2006
S/ N	: 000ca702bb55	TEMPERATURE	: 26deg.C
POWER	: AC120V/60Hz	HUMIDITY	: 66%
MODE	: Tx(Hopping Off)/Inquiry	ENGINEER	: Hiroka Umeyama

Ch	Freq. [MHz]	PM Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-10.54	1.27	10.22	0.95	1.24	20.97	125	20.02
Mid	2441.0	-10.54	1.27	10.22	0.95	1.24	20.97	125	20.02
High	2480.0	-10.56	1.27	10.22	0.93	1.24	20.97	125	20.04
Inquiry	2441.0	-10.97	1.27	10.22	0.52	1.13	20.97	125	20.45

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer)+ Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Radiated Spurious Emission(below 1GHz)

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

* Each channel L/M/H has the same spurious emission level.

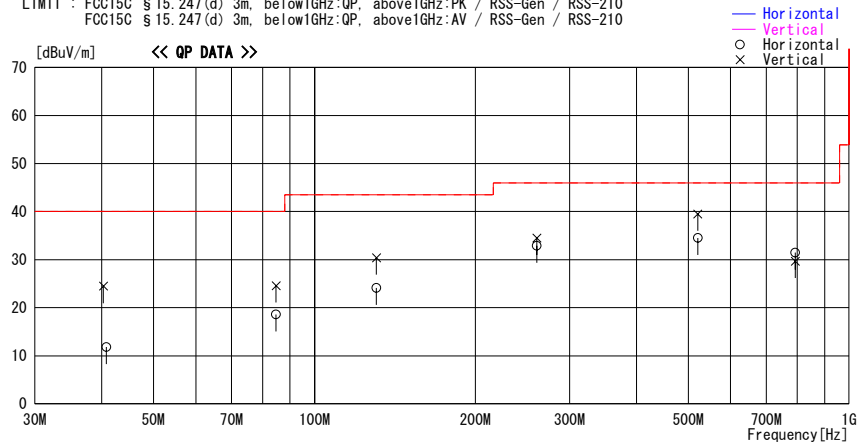
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/08/28 11:52:10

Company : KEYENCE CORPORATION
Kind of EUT : Wireless Barcode Reader (Cradle)
Model No. : BL-N9UB
Serial No. : 5506300451
Report No. : 26IE0265-HO
Power : AC120V/60Hz
Temp./Humi. : 25deg. C. /60%
Operator : Hiroka Umeyama

Mode / Remarks : Transmitting, Max-Axis

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210
FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:AV / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
40.300	35.3	QP	14.1	-24.9	24.5	246	100	Vert.	40.0	15.5
40.800	22.9	QP	13.8	-24.9	11.8	353	300	Hori.	40.0	28.2
84.780	34.8	QP	8.0	-24.2	18.6	222	204	Hori.	40.0	21.4
84.780	40.8	QP	8.0	-24.2	24.6	245	100	Vert.	40.0	15.4
130.575	33.3	QP	14.4	-23.6	24.1	231	155	Hori.	43.5	19.4
130.575	39.6	QP	14.4	-23.6	30.4	5	100	Vert.	43.5	13.1
260.570	36.8	QP	18.6	-22.5	32.9	150	142	Hori.	46.0	13.1
260.570	38.4	QP	18.6	-22.5	34.5	0	100	Vert.	46.0	11.5
521.140	36.7	QP	18.9	-21.1	34.5	247	100	Hori.	46.0	11.5
521.140	41.7	QP	18.9	-21.1	39.5	290	100	Vert.	46.0	6.5
793.000	29.0	QP	21.8	-19.3	31.5	186	100	Hori.	46.0	14.5
793.000	27.2	QP	21.8	-19.3	29.7	30	100	Vert.	46.0	16.3

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

Test report No. : 26IE0265-HO-B-1
Page : 28 of 38
Issued date : September 8, 2006
Revised date : September 21, 2006
FCC ID : RF40823B

Radiated Spurious Emission(below 1GHz)

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

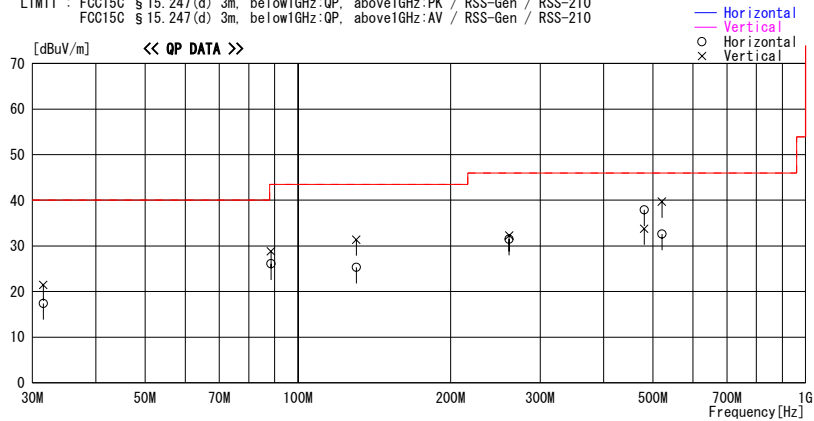
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2006/08/29 09:51:34

Company : KEYENCE CORPORATION
Kind of EUT : Wireless Barcode Reader (Cradle)
Model No. : BL-N9UB
Serial No. : 5506300451
Report No. : 26IE0265-HO
Power : AC120V/60Hz
Temp./Humi. : 25deg. C. /66%
Operator : Hiroka Umeyama

Mode / Remarks : Recieving, Max-Axis

LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210
FCC15C § 15.247(d) 3m, below1GHz:QP, above1GHz:AV / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		Factor	Gain	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
31.512	27.6	QP	19.0	-25.1	21.5	2	100	Vert.	40.0	18.5
31.512	23.5	QP	19.0	-25.1	17.4	130	217	Hori.	40.0	22.6
88.486	41.6	QP	8.6	-24.1	26.1	228	221	Hori.	43.5	17.4
88.486	44.3	QP	8.6	-24.1	28.8	252	100	Vert.	43.5	14.7
130.281	40.6	QP	14.4	-23.6	31.4	29	100	Vert.	43.5	12.1
130.281	34.5	QP	14.4	-23.6	25.3	233	126	Hori.	43.5	18.2
260.564	36.2	QP	18.6	-22.5	32.3	48	278	Vert.	46.0	13.7
260.564	35.4	QP	18.6	-22.5	31.5	172	191	Hori.	46.0	14.5
481.005	36.5	QP	18.6	-21.3	33.8	76	100	Vert.	46.0	12.2
481.005	40.6	QP	18.6	-21.3	37.9	214	100	Hori.	46.0	8.1
521.136	41.9	QP	18.9	-21.1	39.7	76	100	Vert.	46.0	6.3
521.136	34.8	QP	18.9	-21.1	32.6	147	121	Hori.	46.0	13.4

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

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

MF060b(14.06.06)

Test report No. : 26IE0265-HO-B-1
Page : 29 of 38
Issued date : September 8, 2006
Revised date : September 21, 2006
FCC ID : RF40823B

Radiated Spurious Emission(above 1GHz)

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

Company	: KEYENCE CORPORATION	REPORT NO	: 26IE0265-HO
Equipment	: Wireless Barcode Reader (Cradle)	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: BL-N9UB	TEST DISTANCE	: 3/1m
Sample No.	: 5506300451	DATE	: 08/28/2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2402MHz	HUMIDITY	: 60%
Remarks	: Hor X , Ver Z-axis	ENGINEER	: Hiroka Umeyama

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	44.2	44.2	29.1	32.8	2.2	0.0	42.7	42.7	74.0	31.3	31.3
2	2400.0	79.6	78.7	29.1	32.8	2.2	0.0	78.1	77.2	74.0	-	-
3	4804.0	41.3	42.8	33.4	31.6	3.5	0.0	46.6	48.1	74.0	27.4	25.9
4	7206.0	43.4	44.1	37.3	32.1	4.3	0.0	52.9	53.6	74.0	21.1	20.4
5	9608.0	44.6	43.7	39.4	33.1	5.0	0.0	55.9	55.0	74.0	18.1	19.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24020.0	46.3	47.0	39.1	31.6	8.1	0.0	52.4	53.1	74.0	21.6	20.9

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	30.0	30.0	29.1	32.8	2.2	0.0	28.5	28.5	54.0	25.5	25.5
2	2400.0	30.0	30.2	29.1	32.8	2.2	0.0	28.5	28.7	54.0	25.5	25.3
3	4804.0	29.3	28.8	33.4	31.6	3.5	0.0	34.6	34.1	54.0	19.4	19.9
4	7206.0	30.7	30.2	37.3	32.1	4.3	0.0	40.2	39.7	54.0	13.8	14.3
5	9608.0	30.3	30.5	39.4	33.1	5.0	0.0	41.6	41.8	54.0	12.4	12.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24020.0	32.3	32.3	39.1	31.6	8.1	0.0	38.4	38.4	54.0	15.6	15.6

* Reference data

20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2402.0	98.1	96.5	29.1	32.8	2.2	0.0	96.6	95.0	-	-	-
2	2400.0	63.4	62.6	29.1	32.8	2.2	0.0	61.9	61.1	Funda-20dB	14.7	13.9

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

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

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

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

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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

MF060b(14.06.06)

Test report No. : 26IE0265-HO-B-1
Page : 30 of 38
Issued date : September 8, 2006
Revised date : September 21, 2006
FCC ID : RF40823B

Radiated Spurious Emission(above 1GHz)

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

Company	: KEYENCE CORPORATION	REPORT NO	: 26IE0265-HO
Equipment	: Wireless Barcode Reader (Cradle)	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: BL-N9UB	TEST DISTANCE	: 3/1m
Sample No.	: 5506300451	DATE	: 08/28/2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2441MHz	HUMIDITY	: 60%
Remarks	: Hor X , Ver Z-axis	ENGINEER	: Hiroka Umeyama

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]										
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	42.3	42.6	33.6	31.6	3.5	0.0	47.8	48.1	74.0	26.2	25.9
2	7323.0	44.6	43.3	37.4	32.2	4.3	0.0	54.1	52.8	74.0	19.9	21.2
3	9764.0	43.8	43.8	39.6	33.2	5.0	0.0	55.2	55.2	74.0	18.8	18.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24410.0	46.2	47.0	39.1	31.1	8.2	0.0	52.9	53.7	74.0	21.1	20.3

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	28.8	28.8	33.6	31.6	3.5	0.0	34.3	34.3	54.0	19.7	19.7
2	7323.0	30.2	30.2	37.4	32.2	4.3	0.0	39.7	39.7	54.0	14.3	14.3
3	9764.0	30.0	30.0	39.6	33.2	5.0	0.0	41.4	41.4	54.0	12.6	12.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24410.0	31.5	31.5	39.1	31.1	8.2	0.0	38.2	38.2	54.0	15.8	15.8

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

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

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

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

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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

MF060b(14.06.06)

Test report No. : 26IE0265-HO-B-1
Page : 31 of 38
Issued date : September 8, 2006
Revised date : September 21, 2006
FCC ID : RF40823B

Radiated Spurious Emission(above 1GHz)

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

Company	: KEYENCE CORPORATION	REPORT NO	: 26IE0265-HO
Equipment	: Wireless Barcode Reader (Cradle)	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: BL-N9UB	TEST DISTANCE	: 3/1m
Sample No.	: 5506300451	DATE	: 08/28/2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2480MHz	HUMIDITY	: 60%
Remarks	: Hor X , Ver Z-axis	ENGINEER	: Hiroka Umeyama

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	44.1	48.2	29.2	32.7	2.3	0.0	42.9	47.0	74.0	31.1	27.0
2	4960.0	42.5	42.9	33.7	31.6	3.5	0.0	48.1	48.5	74.0	25.9	25.5
3	7440.0	43.5	42.3	37.6	32.3	4.3	0.0	53.1	51.9	74.0	20.9	22.1
4	9920.0	43.3	44.0	39.8	33.2	5.1	0.0	55.0	55.7	74.0	19.0	18.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24800.0	46.2	46.1	39.3	30.6	8.3	0.0	53.7	53.6	74.0	20.3	20.4

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	30.0	29.9	29.2	32.7	2.3	0.0	28.8	28.7	54.0	25.2	25.3
2	4960.0	28.6	28.7	33.7	31.6	3.5	0.0	34.2	34.3	54.0	19.8	19.7
3	7440.0	30.0	30.1	37.6	32.3	4.3	0.0	39.6	39.7	54.0	14.4	14.3
4	9920.0	30.2	30.2	39.8	33.2	5.1	0.0	41.9	41.9	54.0	12.1	12.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24800.0	31.9	31.9	39.3	30.6	8.3	0.0	39.4	39.4	54.0	14.6	14.6

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

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

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

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

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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

MF060b(14.06.06)

Test report No. : 26IE0265-HO-B-1
Page : 32 of 38
Issued date : September 8, 2006
Revised date : September 21, 2006
FCC ID : RF40823B

Radiated Spurious Emission(above 1GHz)

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

Company	: KEYENCE CORPORATION	REPORT NO	: 26IE0265-HO
Equipment	: Wireless Barcode Reader (Cradle)	REGULATION	: Fcc Part15 Subpart B / RSS-210 / RSS-Gen
Model	: BL-N9UB	TEST DISTANCE	: 3m
Sample No.	: 5506300451	DATE	: 08/28/2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Receiving	HUMIDITY	: 60%
Remarks	: Hor X , Ver Z-axis	ENGINEER	: Hiroka Umeyama

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	1823.9	49.0	46.2	27.8	33.3	2.0	0.0	45.5	42.7	74.0	28.5	31.3
2	2412.0	60.0	58.0	29.1	32.8	2.2	0.0	58.5	56.5	74.0	15.5	17.5

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	1823.9	37.2	33.8	27.8	33.3	2.0	0.0	33.7	30.3	54.0	20.3	23.7
2	2412.0	30.5	30.3	29.1	32.8	2.2	0.0	29.0	28.8	54.0	25.0	25.2

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

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

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

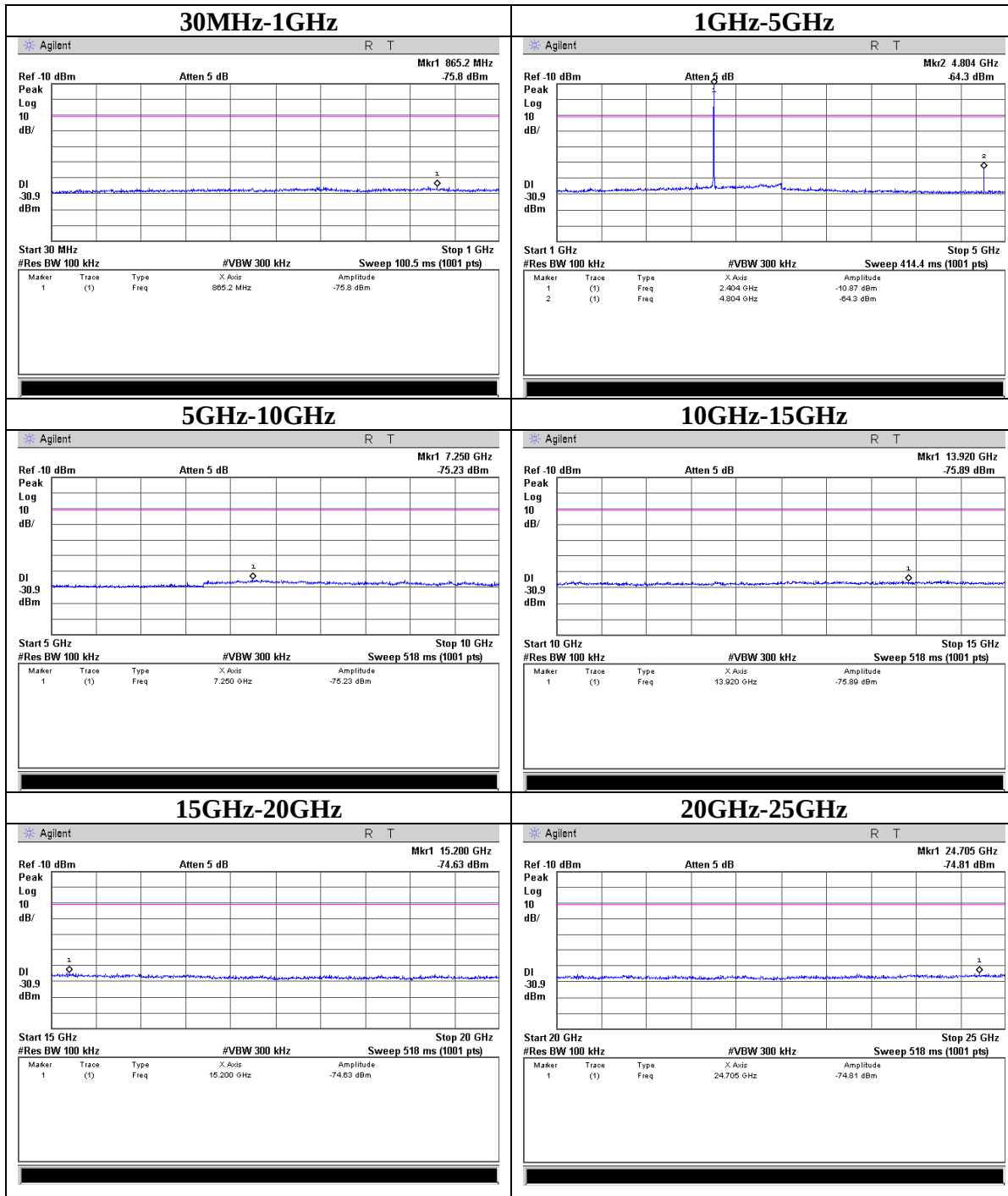
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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

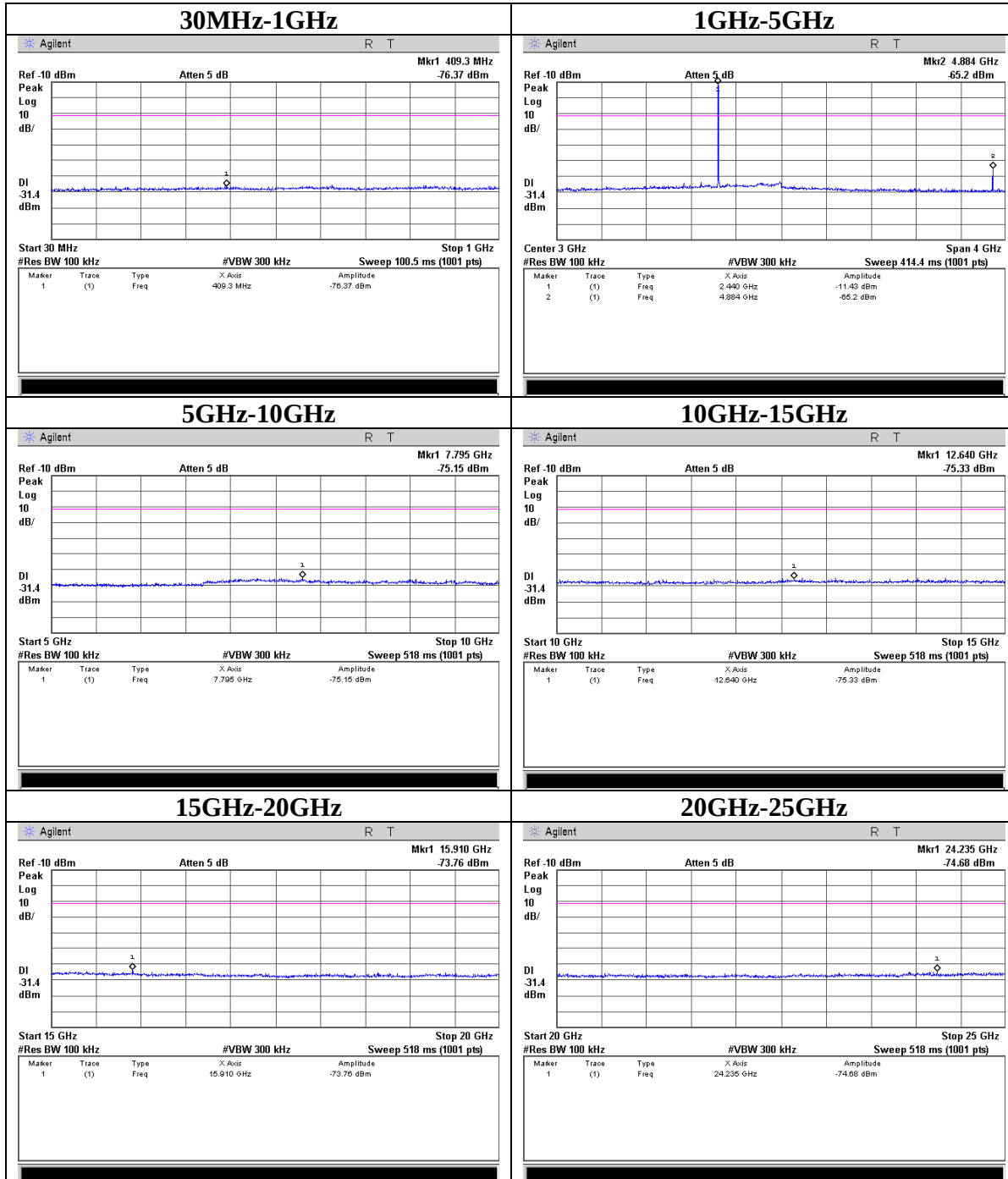
MF060b(14.06.06)

Conducted Spurious Emission

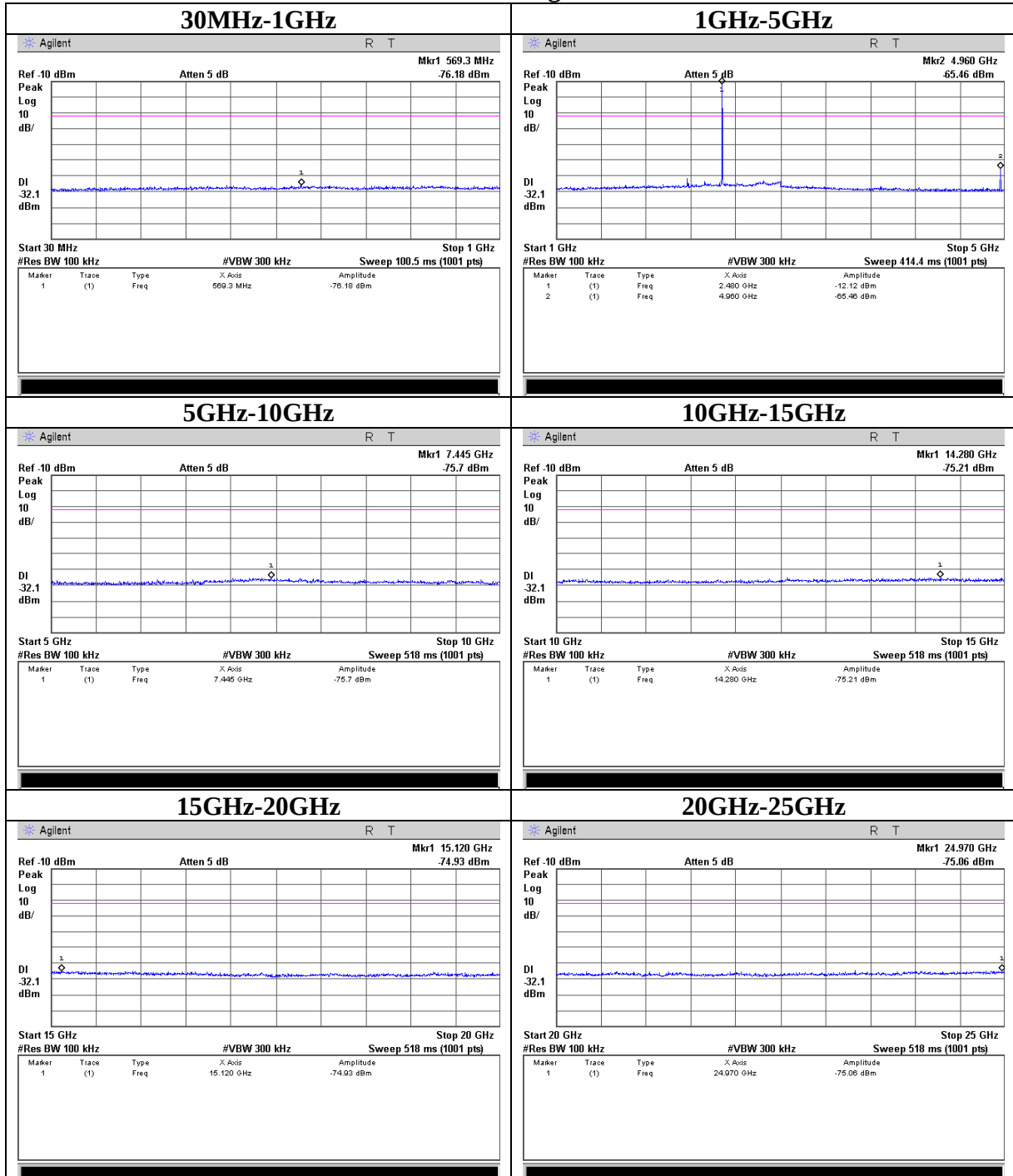
Ch:Low



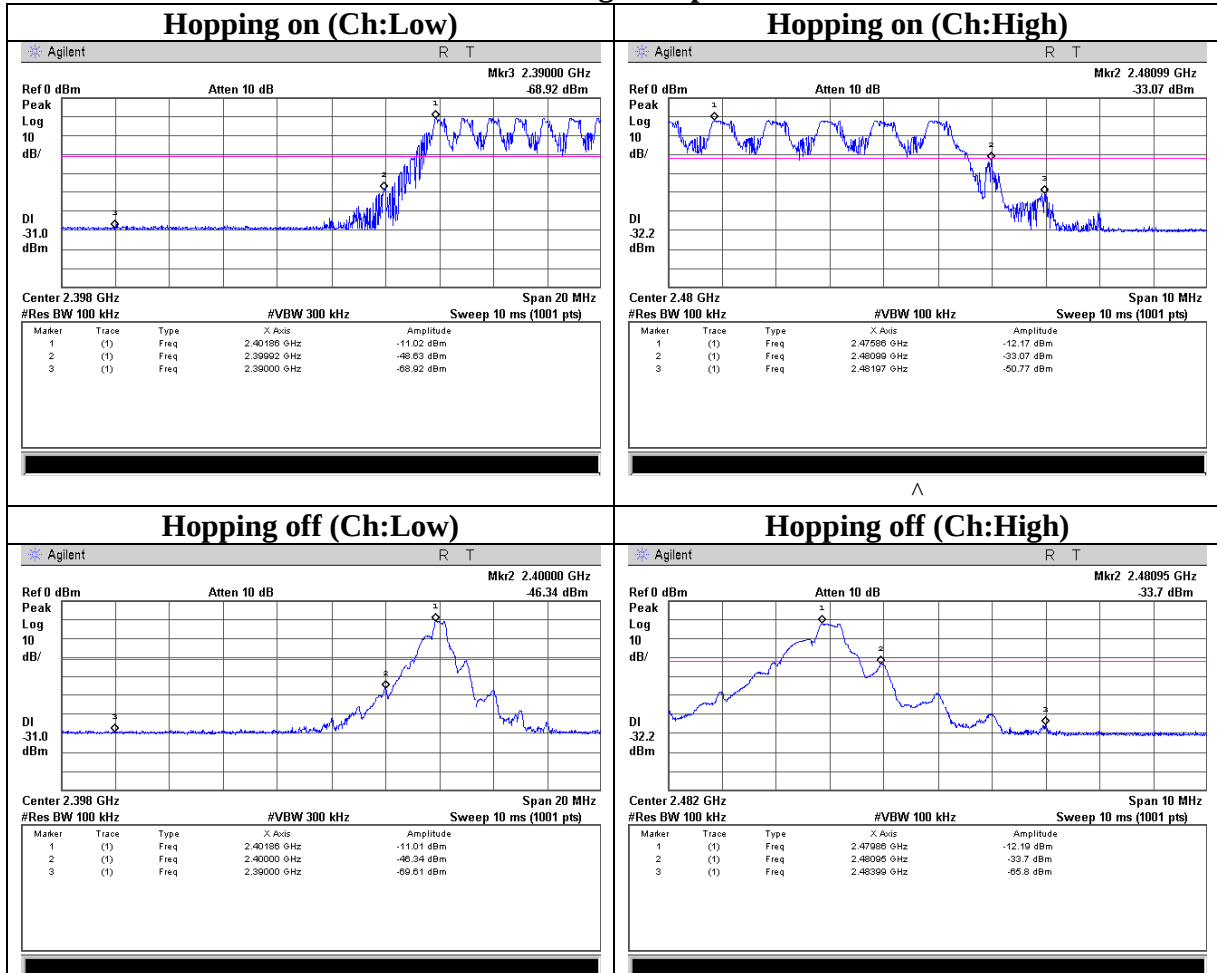
Conducted Spurious Emission
Ch:Mid



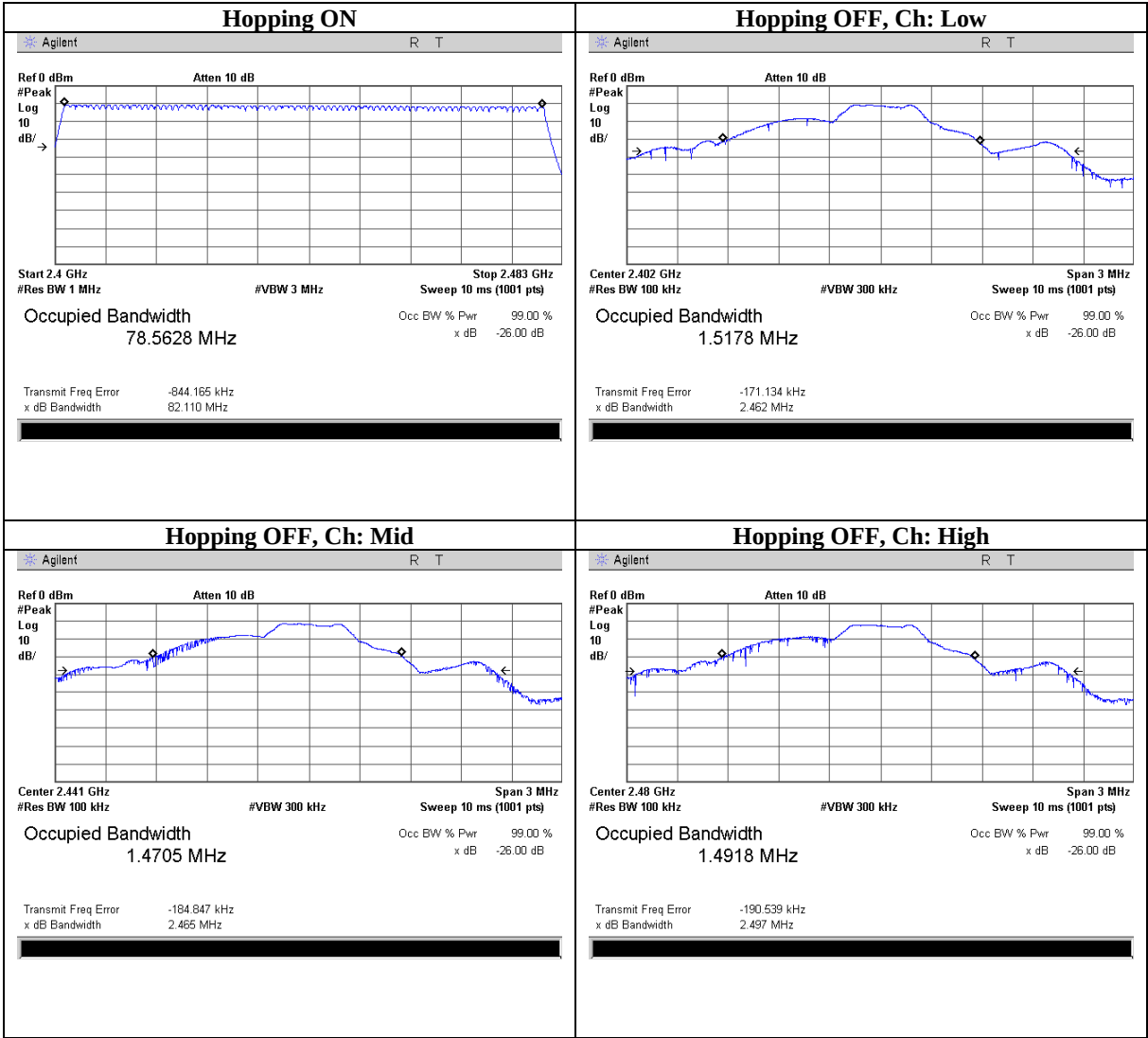
Conducted Spurious Emission
Ch:High



Conducted Spurious Emission
Band Edge compliance



99% Occupied Bandwidth



APPENDIX 3:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE/CE	2006/03/03 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE/CE/AT	2006/01/19 * 24
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MCC-51	Coaxial cable	UL Apex	-	RE/CE	2006/03/11 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE	2006/03/25 * 12
TR-07	Test Receiver	Rohde & Schwarz	ESCS30	RE/CE	2005/09/14 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	RE/AT	2006/06/02 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/04/06 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2006/01/09 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE(AE)	2006/02/06 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2006/02/06 * 12
MTA-04	Terminator	MCL	NTRM-50	CE	2006/02/06 * 12
MSA-06	Spectrum Analyzer	Agilent	E4407B	AT	2006/05/24 * 12
MAT-25	Attenuator(10dB)(above1GHz)	Agilent	8493C	AT	2006/06/02 * 12
MRENT-35	Power Meter	Anritsu	ML2496A	AT	2006/04/25 * 12
MRENT-34	Power sensor	Anritsu	MA2411B	AT	2006/04/25 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2004/11/25 * 24

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

Test Item:

RE: Radiated Spurious Emission
CE: Conducted Emission
AT: Antenna Terminal Conducted test

UL Apex Co., Ltd.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(14.06.06)