RADIO TEST REPORT

Test Report No. : 27CE0032-HO

Applicant	:	**Beckman Coulter, Inc.**
Type of Equipment	:	**IDS RFID Module**
Model No.	:	**A00044109**
FCC ID	:	**UWDA00044109**
Test Standard	:	**FCC Part15 Subpart C,** **Section 15.209, 15.215, 15.225: 2006**
Test Result	:	**Complied**

1. This test report shall not be reproduced except in full, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with the above regulation.
4. The test results in this test report are traceable to the national or international standards.

Date of test: October 26 and November 2, 2006

Tested by: Akira Sato & Tatsuya Arai

Approved by: Osamu Watatani
Manager of Yamakita EMC Lab.

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1 Applicant Information

Company Name	:	Beckman Coulter, Inc.
Address	:	4300 N HARBOR BLVD Fullerton, CA 92835
Telephone Number	:	+81-714-773-7974
Facsimile Number	:	+81-714-773-8106
Contact Person	:	Jeffrey Gonzalez

2 Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	IDS RFID Module
Model No.	:	A00044109
Serial No.	:	A00044109-2165-0602001
Rating	:	DC9.0V
Country of Manufacture	:	Japan
Receipt Date of Sample	:	October 25, 2006
Condition of EUT	:	Production model
Modification of EUT	:	No modification by the test lab.

2.2 Product Description

Model: A00044109 (referred to as the EUT in this report) is an IDS RFID Module.
The EUT communicates with the micro IC tag, IM0505-SLI, at the frequency of 13.56MHz.
Reading and writing of 112byte data to memory of the IC tag is available.

Equipment type	:	Transceiver
Frequency of operation	:	13.56 MHz
Type of modulation	:	ASK
Antenna type	:	Loop antenna
Antenna connector type	:	PH (Manufacturer: JST)
Mode of operation	:	Simplex
Other clock frequency	:	10MHz
Emission Designation	:	A1D
Operation temperature range:		0 ~ +55 deg. C.

*FCC Part15.31 (e)
The modular transmitter does not have its own power supply, so that the regulated power of 5V is supplied from the end product. Therefore the use of this device is limited to the end product which has 5V stabilized power source.

*FCC Part15.203 and 204 (c)
The antenna connector of this product is a PH Connector produced by J.S.T.Mfg Co., Ltd. It deems to be special. Moreover, this product is installed in the PAS by professional installation. Therefore, the equipment complies with the antenna requirement of 15.203 and 15.204(c).

3 Test Specification, Procedures and Results

3.1 Test specification

Test specification : FCC Part15 Subpart C: 2006
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.209: Radiated emission limits, general requirements
Section 15.215: Additional provisions to the general radiated emission limitations
Section 15.225: Operation within the band 13.110-14.010MHz

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted Emission	ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Part 15 Subpart B, Class A (CISPR 22)	-	*1)	1.3dB (17.3155MHz&17.4508MHz, L1, AV)	Complied
Electric Field Strength of Fundamental Emission	ANSI C63.4: 2003 13. Measurement of intentional radiators	Section 15.225 (a)	Radiated	N/A	60.8dB (Vertical)	Complied
Electric Field Strength of Outside the Allocated bands	ANSI C63.4: 2003 13. Measurement of intentional radiators	Section 15.225 (b) (c)	Radiated	N/A	38.50dB (13.553MHz, Vertical)	Complied
Electric Field Strength of Spurious Emission	ANSI C63.4: 2003 13. Measurement of intentional radiators	Section15.209, Section 15.225 (d)	Radiated	N/A	2.0dB (189.84MHz, Vertical)	Complied
20dB Bandwidth	ANSI C63.4: 2003 13. Measurement of intentional radiators	Section15.215 (c)	Radiated	N/A	-	Complied
Frequency Tolerance	ANSI C63.4: 2003 13. Measurement of intentional radiators	Section15.225 (e)	Radiated	N/A	-	Complied

Note: UL Apex's EMI Work Procedures No.QPM05.

*1) The module is installed in the product which is applicable to Subpart B, Class A, therefore the test was performed with the specification of the part.
* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.3 Uncertainty

Conducted emission
The measurement uncertainty (with 95% confidence level) for this test is ±2.7dB.
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Radiated emission
The measurement uncertainty (with a 95% confidence level) for this test using Loop antenna is ±2.3dB.
The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is ±4.5dB.
The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is ±4.3dB.
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Frequency tolerance
The measurement uncertainty (with 95% confidence level) for this test is 0.000014MHz.

3.4 Test Location

UL Apex Co., Ltd. Yamakita EMC Lab.
907, Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken 258-0124 JAPAN
Telephone number : +81 465 77 1011
Facsimile number : +81 465 77 2112
NVLAP Lab. code : 200441-0

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on August 26, 2005 (Registration No.: 95486).
IC Registration No. : IC3489A

No. 2 test site has been fully described in a report submitted to FCC office, and accepted on April 4, 2005 (Registration No.: 466226).
IC Registration No. : IC3489A-2

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on November 2, 2005 (Registration No.: 95967).
IC Registration No. : IC3489A-B

Test room	Width x Depth x Height (m)	Test room	Width x Depth x Height (m)
No.1 shielded room	8.0 x 5.0 x 2.5	No.1 EMS lab. (Semi-anechoic chamber)	10.0 x 7.5 x 5.7
No.2 shielded room	5.0 x 4.0 x 2.5		
No.3 shielded room	4.0 x 5.0 x 2.7		

4 System Test Configuration

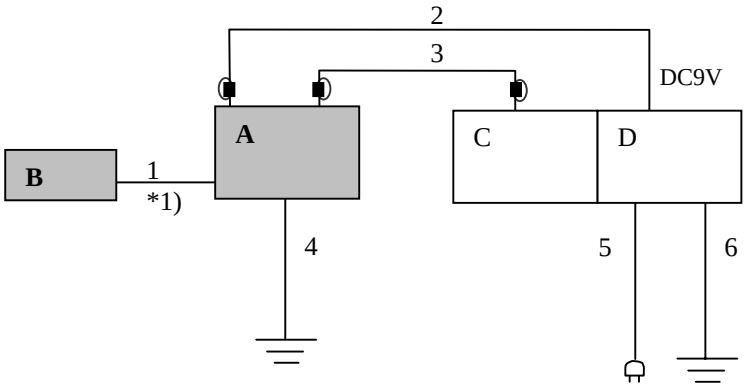
4.1 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

Operation: Transmitting (13.56MHz)

4.2 Configuration of Tested System

■: Ferrite core (Standard attachment)



*1) For Conducted emission test, the antenna port was terminated.

* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID (Remarks)
A	IDS RFID Module	A00044109	A00044109-2165-0602001	MITSUBISHI ELECTRIC	UWDA00044109 (EUT)
B	Antenna	-	-	-	(EUT)
C	Control unit	-	-	MITSUBISHI ELECTRIC	-
D	Power unit	-	-	MITSUBISHI ELECTRIC	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Connector	Cable	
1	Antenna cable	0.3	Unshielded	Unshielded	-
2	DC cable	1.4 or 8.6	Unshielded	Unshielded	*2)
3	RS232C cable	0.8 or 2.6	Shielded	Shielded	*2)
4	Earth cable	1.3	Unshielded	Unshielded	-
5	AC power cable	1.7	Unshielded	Unshielded	-
6	Earth cable	1.4 or 4.4	Shielded	Shielded	*2)

*2) During the radiated emission test, longer cables were used since the support equipments were placed under the turn table.

5 Conducted Emissions

5.1 Operating environment

The test was carried out in No.2 shielded room.

Temperature : See test data
Humidity : See test data

5.2 Test configuration

EUT was placed on a wooden platform of nominal size, 1m by 1.8m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. EUT was located 80cm from LISN and excess AC cable was bundled in center. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface.
A drawing of the set up is shown in the photos of Appendix 1.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top
EUT operation mode : Transmitting

5.4 Test procedure

The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.
The Conducted emission measurements were made with the following detector function of the test receiver.
Detector: QP/AV
IF Bandwidth: 9kHz

5.5 Results

Summary of the test results : Pass

Date : November 2, 2006 Test engineer : Tatsuya Arai

6 Radiated Emissions (Fundamental, Spurious and Outside the Allocated bands)

6.1 Operating environment

The test was carried out in No.1 anechoic chamber.

Temperature : See test data
Humidity : See test data

6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. A drawing of the set up is shown in the photos of Appendix 1.

6.3 Test conditions

Frequency range : 9kHz - 1GHz
EUT position : Table top
EUT operation mode : Transmitting

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m.

Frequency: From 9kHz to 30MHz at distance 3m
The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for each antenna angle 0deg., 45deg. and 90deg.

Frequency: From 30MHz to 1GHz at distance 3m
The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.

Measurements were performed with QP, PK, and AV detector.
The radiated emission measurements were made with the following detector function of the test receiver.

	From 9kHz to 90kHz and From 110kHz to 150kHz	From 90kHz to 110kHz	From 150kHz to 490kHz	From 490kHz to 30MHz	From 30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz
Measuring antenna	Loop antenna				Biconical (30-299MHz) Logperiodic (300MHz-1GHz)

The EUT and its antennas were previously checked at each position of three axes. The position in which the maximum noise occurred was chosen to put into measurement. See the table and photographs in page 13 to 14. With the position, the noise levels of all the frequencies were measured.

* Part 15 Section 15.31 (f)(2) (9kHz-30MHz)
9kHz – 490kHz [Limit at 3m]= [Limit at 300m]-40log (3[m]/300[m])
490kHz – 30MHz [Limit at 3m]= [Limit at 30m]-40log (3[m]/30[m])

6.5 Results

Summary of the test results : Pass
Date : November 2, 2006 Test engineer : Tatsuya Arai

7 20dB Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Summary of the test results: Pass
Date : November 2, 2006 Test engineer : Tatsuya Arai

8 Frequency Tolerance

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.
The temperature test was started after the temperature stabilization time of 30 minutes.

Summary of the test results: Pass
Date : October 26, 2006 Test engineer : Akira Sato

APPENDIX 1: Photographs of test setup

APPENDIX 2: Test Data

APPENDIX 3: Test instruments

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DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD ROOM
Report No. : 27CE0032-H0

Applicant	: Beckman Coulter, Inc.		
Kind of Equipment	: IDS RFID Module		
Model No.	: A00044109		
Serial No.	: A00044109-2165-0602001		
Power	: DC9V		
Mode	: Transmitting (13.56MHz)		
Remarks	:		
Date	: 11/2/2006		
Phase	: Single Phase		
Temperature	: 23 ℃	Engineer	: Tatsuya Arai
Humidity	: 55 %		
Regulation	: FCC Part15B CLASS A (CISPR Pub.22)		

No.	FREQ.	READING(N) QP	READING(N) AV	READING(L1) QP	READING(L1) AV	LISN FACTOR	CABLE LOSS	ATTEN.	RESULT QP	RESULT AV	LIMITS QP	LIMITS AV	MARGIN QP	MARGIN AV
	[MHz]	[dBμV]		[dBμV]		[dB]	[dB]	[dB]	[dB]		[dBμV]		[dB]	
1.	0.1699	57.8	57.7	58.6	58.1	0.1	0.1	0.0	58.8	58.3	79.0	66.0	20.2	7.7
2.	0.3410	36.4	-	37.4	-	0.1	0.1	0.0	37.6	-	79.0	66.0	41.4	-
3.	17.1008	55.5	54.8	57.8	57.2	0.8	0.6	0.0	59.2	58.6	73.0	60.0	13.8	1.4
4.	17.3155	55.4	54.9	57.6	57.3	0.8	0.6	0.0	59.0	58.7	73.0	60.0	14.0	1.3
5.	17.4508	55.3	54.9	57.7	57.3	0.8	0.6	0.0	59.1	58.7	73.0	60.0	13.9	1.3
6.	29.7933	54.6	45.8	55.5	46.7	0.8	0.8	0.0	57.1	48.3	73.0	60.0	15.9	11.7

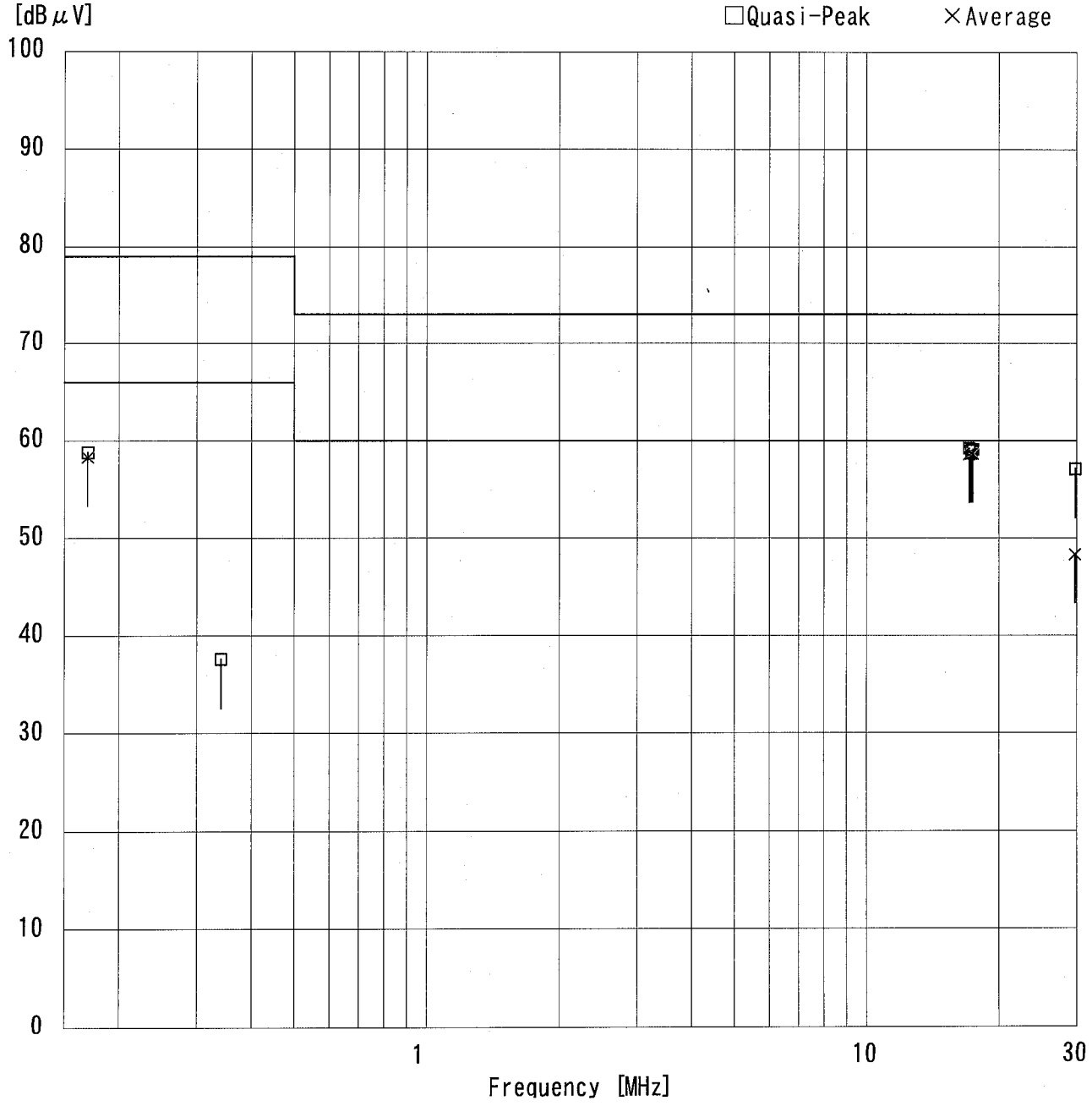
CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■LISN :KLS-01(NSLK8126) ■COAXIAL CABLE:KCC-33/34
■EMI RECEIVER:APRCV05(ESS)

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD ROOM
Report No. : 27CE0032-H0

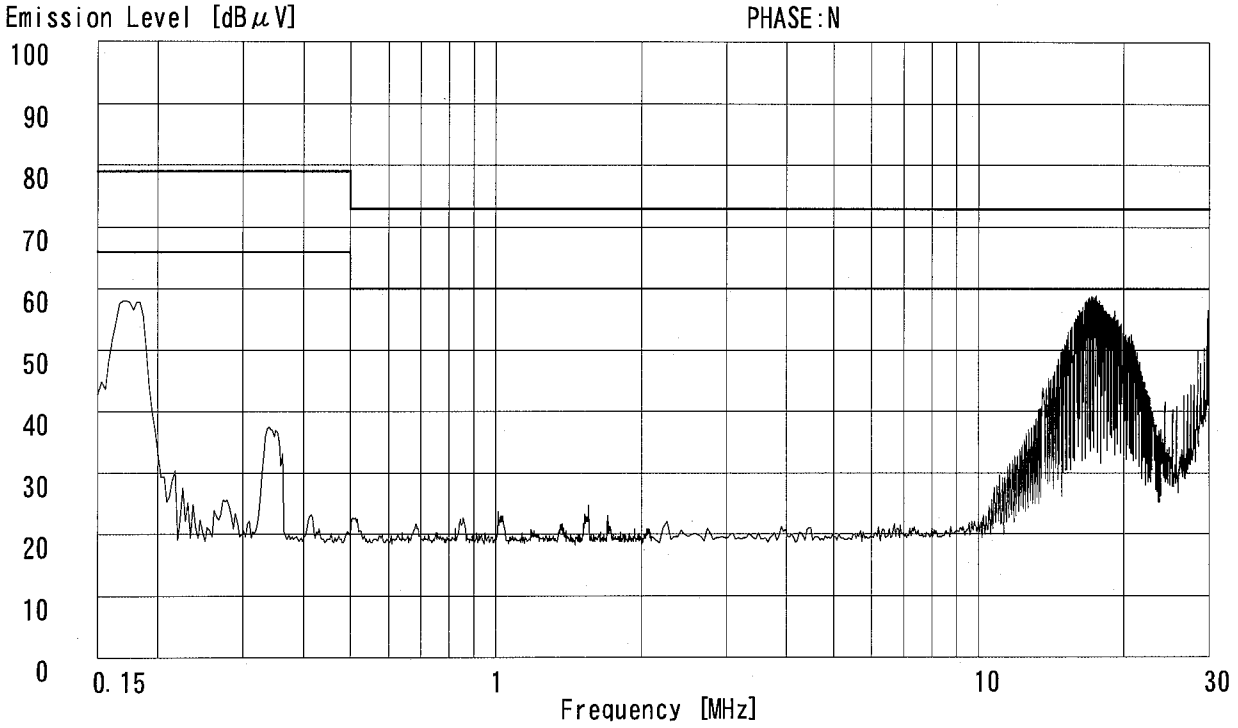
Applicant	: Beckman Coulter, Inc.		
Kind of Equipment	: IDS RFID Module		
Model No.	: A00044109		
Serial No.	: A00044109-2165-0602001		
Power	: DC9V		
Mode	: Transmitting (13.56MHz)		
Remarks	:		
Date	: 11/2/2006		
Phase	: Single Phase		
Temperature	: 23 ℃	Engineer	: Tatsuya Arai
Humidity	: 55 %		
Regulation	: FCC Part15B CLASS A (CISPR Pub.22)		

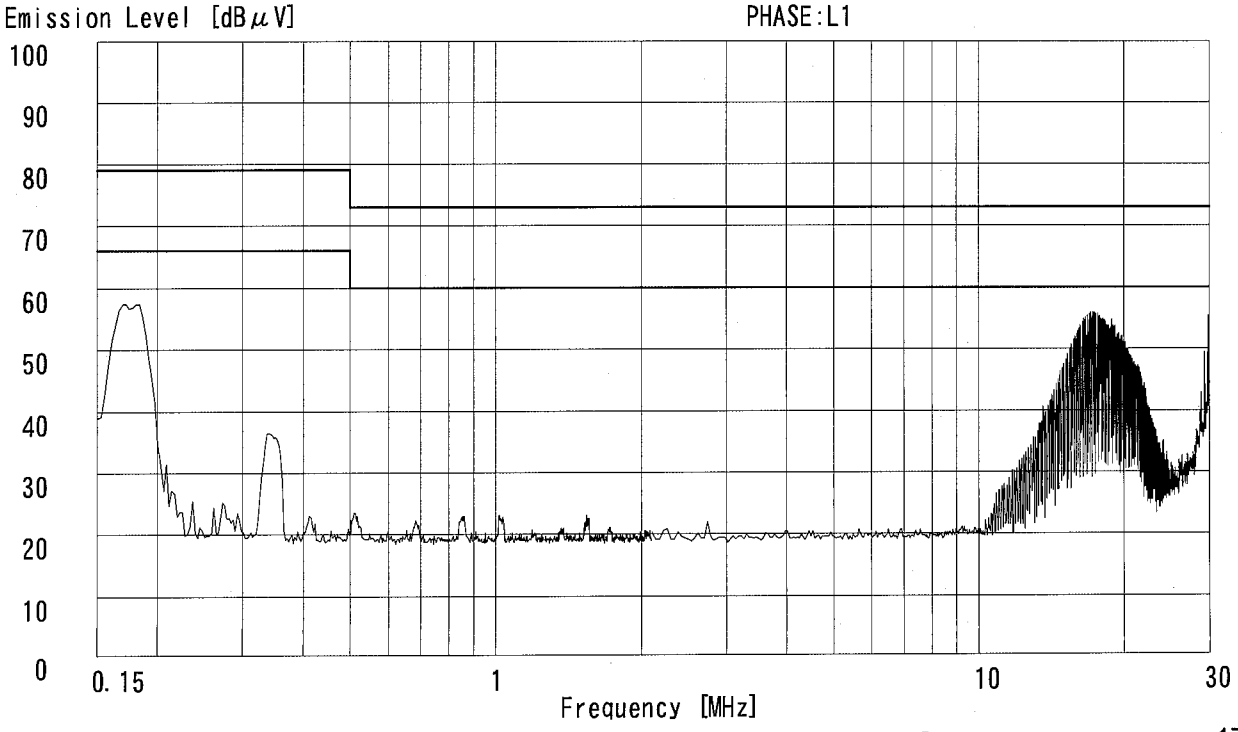


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD ROOM
Report No. : 27CE0032-H0

Applicant	: Beckman Coulter, Inc.		
Kind of Equipment	: IDS RFID Module		
Model No.	: A00044109		
Serial No.	: A00044109-2165-0602001		
Power	: DC9V		
Mode	: Transmitting (13.56MHz)		
Remarks	:		
Date	: 11/2/2006		
Phase	: Single Phase		
Temperature	: 23 ℃	Engineer	: Tatsuya Arai
Humidity	: 55 %		
Regulation 1	: FCC Part15B CLASS A (CISPR Pub.22)		
Regulation 2	: None		





Data of Field Strength and Outside Fileld Strength: FCC15.225

UL Apex Co.,Ltd.
YAMAKITA No1 Anechoic Chamber

Company	: Beckman Coulter, Inc.	Report No.	: 27CE0032-HO
Equipment	: IDS RFID Module	Regulation	: FCC Part15 SupartC 15.225
Model	: A00044109	Test Distance	: 3m
Sample No.	: A00044109-2165-0602001	Date	: 2006/11/02
FCC ID	: UWDA00044109	Temperature	: 22deg.C
Power	: DC9V	Humidity	: 54%
Mode	: Transmitting (13.56MHz)		

ENGINEER : Tatsuya Arai

Field strength

No.	FREQ	T/R Reading		ANT Factor	ATTEN	CABLE LOSS	AMP GAIN	RESULT		LIMIT (3m)	MARGIN	
		Hor	Ver					Hor	Ver		Hor	Ver
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]
1	13.560	60.3	65.4	19.5	6.0	0.7	28.4	58.1	63.2	124.0	65.9	60.8

Field strength of 13.553MHz to 13.567MHz Limit(3m) = 84dBuV/m + 40log 30m/3m
= 124dBuV/m (FCC15.225(a))

Outside Field strength

No.	FREQ	T/R Reading		ANT Factor	ATTEN	CABLE LOSS	AMP GAIN	RESULT		LIMIT (3m)	MARGIN	
		Hor	Ver					Hor	Ver		Hor	Ver
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dBuV/m]	[dB]	[dB]
1	13.110	26.5	27.4	19.5	6.0	0.7	28.4	24.3	25.2	69.5	45.20	44.30
2	13.410	26.9	27.3	19.5	6.0	0.7	28.4	24.7	25.1	80.5	55.80	55.40
3	13.553	36.1	54.2	19.5	6.0	0.7	28.4	33.9	52.0	90.5	56.60	38.50
4	13.567	33.5	38.5	19.5	6.0	0.7	28.4	31.3	36.3	90.5	59.20	54.20
5	13.710	26.5	28.6	19.6	6.0	0.7	28.4	24.4	26.5	80.5	56.10	54.00
6	14.010	26.4	26.8	19.6	6.0	0.7	28.4	24.3	24.7	69.5	45.20	44.80

Outside filed strength frequencies
・filed strength band Fc±7kHz:13.553MHz to 13.567MHz
・Outside filde strength Fc±150kHz:13.410MHz to 13.710MHz
・Outside filde strength Fc±450kHz:13.110MHz to 14.010MHz
Fc = 13.56MHz

Limits (3m)
・13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz : 50.5dBuV/m + 40log30m/3m = 90.5dBuV/m (FCC15.225(b))
・13.110MHz to 14.010MHz and 13.710MHz to 14.010MHz : 40.5dBuV/m + 40log30m/3m = 80.5dBuV/m (15.225(c))
・Below 13.110MHz and Above 14.010MHz : 29.5dBuV/m + 40log30m/3m = 69.5dBuV/m (FCC15.225(d)and FCC15.209)

Antenna: KLP-01(HFH2-Z2) 0.15-30MHz
KCC-30/31/32/34(RE)
AMP: KAF-05(8447D)
Receiver: APRCV05

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27CE0032-HO

Applicant	:	Beckman Coulter, Inc.	
Kind of Equipment	:	IDS RFID Module	
Model No.	:	A00044109	
Serial No.	:	A00044109-2165-0602001	
Power	:	DC9V	
Mode	:	Transmitting (13.56MHz)	
Remarks	:	Antenna:Z Box:Z	
Date	:	11/2/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Tatsuya Arai
Humidity	:	54 %	
Regulation	:	FCC Part15C §15.209 9KHz-30MHz (3m)	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	27.12	BB	32.8	41.8	21.2	28.4	1.0	6.0	32.6	41.6	69.5	36.9	27.9
2.	29.79	BB	26.5	36.2	21.6	28.5	1.1	6.0	26.7	36.4	69.5	42.8	33.1

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KLP-01 (HFH2-Z2) 0.15-30MHz
■AMP:KAF-05 (8447D) ■RECEIVER:APRCV05 ■KCC-30_31_32_34 (RE)

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DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27CE0032-H0

Applicant	:	Beckman Coulter, Inc.	
Kind of Equipment	:	IDS RFID Module	
Model No.	:	A00044109	
Serial No.	:	A00044109-2165-0602001	
Power	:	DC9V	
Mode	:	Transmitting (13.56MHz)	
Remarks	:	Antenna: Z, Box: Z	
Date	:	11/2/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Tatsuya Arai
Humidity	:	54 %	
Regulation	:	FCC Part15C §15.209	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	40.68	BB	24.6	34.4	14.2	28.5	1.3	6.0	17.6	27.4	40.0	22.4	12.6
2.	54.24	BB	31.5	47.9	10.4	28.5	1.5	6.0	20.9	37.3	40.0	19.1	2.7
3.	67.80	BB	28.7	47.1	7.8	28.5	1.6	6.0	15.6	34.0	40.0	24.4	6.0
4.	81.36	BB	32.9	45.4	7.4	28.5	1.8	6.0	19.6	32.1	40.0	20.4	7.9
5.	94.92	BB	35.1	44.1	10.0	28.6	2.0	6.1	24.6	33.6	43.5	18.9	9.9
6.	108.47	BB	42.1	47.5	12.1	28.4	2.1	6.1	34.0	39.4	43.5	9.5	4.1
7.	122.04	BB	30.7	35.3	13.6	28.3	2.3	6.1	24.4	29.0	43.5	19.1	14.5
8.	135.60	BB	31.5	35.0	14.3	28.2	2.4	6.1	26.1	29.6	43.5	17.4	13.9
9.	162.72	BB	38.6	40.4	15.8	28.1	2.6	6.0	34.9	36.7	43.5	8.6	6.8
10.	189.84	BB	41.3	43.8	16.9	28.1	2.9	6.0	39.0	41.5	43.5	4.5	2.0
11.	203.40	BB	36.1	38.4	17.1	27.9	3.0	6.0	34.3	36.6	43.5	9.2	6.9
12.	216.96	BB	39.0	41.3	17.2	27.8	3.1	6.0	37.5	39.8	46.0	8.5	6.2
13.	221.08	BB	37.6	38.4	17.3	27.8	3.1	6.0	36.2	37.0	46.0	9.8	9.0
14.	325.43	BB	43.9	41.2	15.6	27.8	4.0	6.0	41.7	39.0	46.0	4.3	7.0
15.	352.56	BB	45.0	41.5	16.5	28.0	4.3	6.0	43.8	40.3	46.0	2.2	5.7
16.	361.76	BB	43.3	41.3	16.8	28.1	4.5	6.0	42.5	40.5	46.0	3.5	5.5
17.	366.11	BB	41.3	38.0	16.9	28.2	4.5	6.0	40.5	37.2	46.0	5.5	8.8

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

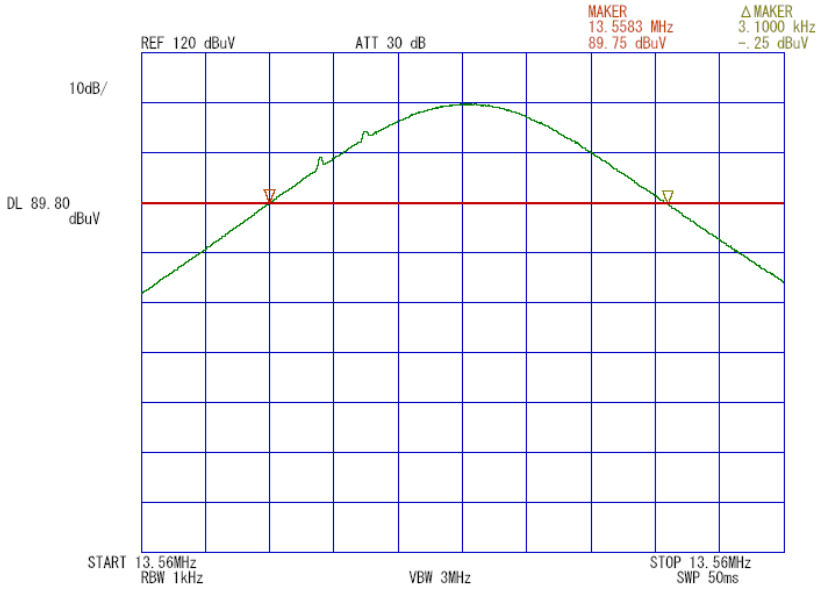
■ANTENNA:KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
■AMP:KAF-05 (8447D) ■RECEIVER:APRCV05 ■KCC-30_31_32_34 (RE)

Bandwidth: FCC 15.215(c)

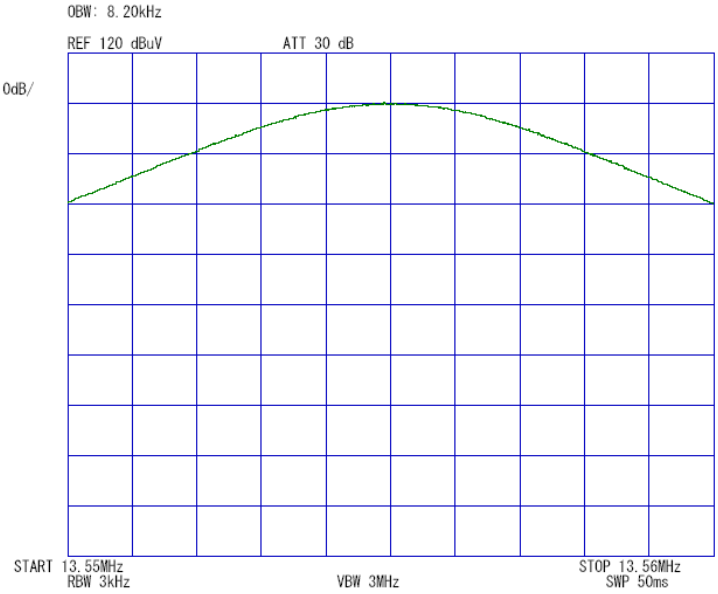
UL Apex Co., Ltd. Yamakita No.2 Shielded room

COMPANY	**: Beckman Coulter, Inc.**	**REPORT No.**	**: 27CE0032-HO**
Equipment	**: IDS RFID Module**	**REGULATION**	**: FCC Part15SubpartC 215(c)**
MODEL NUMBER	**: A00044109**	**DATE**	**: 2006/11/02**
SERIAL NUMBER	**: A00044109-2165-0602001**	**TEMP./HUMI**	**: 23˚C/55%**
FCC ID	**: UWDA00044109**	**TEST MODE**	**: Transmitting**
POWER	**: DC9V**	**ENGINEER**	**: Tatsuya Arai**
Remarks	**: -**		

20dB Bandwidth:3.10kHz



OBW(99%):8.20kHz



Data of Frequency Tolerance: FCC 15.225(e)

UL Apex Co.,Ltd.
YAMAKITA No4 Shield room

Company : Beckman Coulter, Inc.
Equipment : IDS RFID Module
Model : A00044109
Sample No. : A00044109-2165-0602001
FCC ID : UWDA00044109
Power : AC120V/60Hz
Mode : Transmitting (13.56MHz)

Report No. : 27CE0032-HO
Regulation : FCC Part15 SupartC 15.225 (e)
Test Distance : 3m
Date : 2006/10/26
Temperature : 21deg.C
Humidity : 50%

ENGINEER : Akira Sato

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559630	-0.0003700	-0.00273	0.01
after 2minutes	13.56	13.559630	-0.0003700	-0.00273	0.01
after 5minutes	13.56	13.559660	-0.0003400	-0.00251	0.01
after 10minutes	13.56	13.559650	-0.0003500	-0.00258	0.01

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559680	-0.0003200	-0.00236	0.01
after 2minutes	13.56	13.559710	-0.0002900	-0.00214	0.01
after 5minutes	13.56	13.559690	-0.0003100	-0.00229	0.01
after 10minutes	13.56	13.559680	-0.0003200	-0.00236	0.01

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559750	-0.0002500	-0.00184	0.01
after 2minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 5minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 10minutes	13.56	13.559740	-0.0002600	-0.00192	0.01

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559750	-0.0002500	-0.00184	0.01
after 2minutes	13.56	13.559760	-0.0002400	-0.00177	0.01
after 5minutes	13.56	13.559750	-0.0002500	-0.00184	0.01
after 10minutes	13.56	13.559760	-0.0002400	-0.00177	0.01

Data of Frequency Tolerance: FCC 15.225(e)

UL Apex Co.,Ltd.
YAMAKITA No4 Shield room

Company : Beckman Coulter, Inc.
Equipment : IDS RFID Module
Model : A00044109
Sample No. : A00044109-2165-0602001
FCC ID : UWDA00044109
Power : AC120V/60Hz
Mode : Transmitting (13.56MHz)

Report No. : 27CE0032-HO
Regulation : FCC Part15 SupartC 15.225 (e)
Test Distance : 3m
Date : 2006/10/26
Temperature : 21deg.C
Humidity : 50%

ENGINEER : Akira Sato

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559740	-0.0002600	-0.00192	0.01
after 2minutes	13.56	13.559750	-0.0002500	-0.00184	0.01
after 5minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 10minutes	13.56	13.559740	-0.0002600	-0.00192	0.01

Temperature Variation: 30deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559730	-0.0002700	-0.00199	0.01
after 2minutes	13.56	13.559750	-0.0002500	-0.00184	0.01
after 5minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 10minutes	13.56	13.559730	-0.0002700	-0.00199	0.01

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559720	-0.0002800	-0.00206	0.01
after 2minutes	13.56	13.559720	-0.0002800	-0.00206	0.01
after 5minutes	13.56	13.559720	-0.0002800	-0.00206	0.01
after 10minutes	13.56	13.559720	-0.0002800	-0.00206	0.01

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Mesure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559720	-0.0002800	-0.00206	0.01
after 2minutes	13.56	13.559720	-0.0002800	-0.00206	0.01
after 5minutes	13.56	13.559720	-0.0002800	-0.00206	0.01
after 10minutes	13.56	13.559720	-0.0002800	-0.00206	0.01

Data of Frequency Tolerance: FCC 15.225(e)

UL Apex Co.,Ltd.
YAMAKITA No4 Shield room

Company	: Beckman Coulter, Inc.	Report No.	: 27CE0032-HO
Equipment	: IDS RFID Module	Regulation	: FCC Part15 SupartC 15.225 (e)
Model	: A00044109	Test Distance	: 3m
Sample No.	: A00044109-2165-0602001	Date	: 2006/10/26
FCC ID	: UWDA00044109	Temperature	: 21deg.C
Power	: AC120V/60Hz	Humidity	:50%
Mode	: Transmitting (13.56MHz)		

ENGINEER : Akira Sato

Input Voltage:AC102V (85%)

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559760	-0.0002400	-0.00177	0.01
after 2minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 5minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 10minutes	13.56	13.559740	-0.0002600	-0.00192	0.01

Input Voltage:AC138V(115%)

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (kHz)	Frequency torerance (%)	Limit (%)
startup	13.56	13.559740	-0.0002600	-0.00192	0.01
after 2minutes	13.56	13.559760	-0.0002400	-0.00177	0.01
after 5minutes	13.56	13.559740	-0.0002600	-0.00192	0.01
after 10minutes	13.56	13.559740	-0.0002600	-0.00192	0.01

Test Report No :27CE0032-HO

APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
YA-CE	Conducted emission(software)	UL-Apex	CE(Ver.1.6)	CE	
YA-RE	Radiated emission(software)	UL-Apex	RE(Ver.1.5)	RE	
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	RE	2006/08/31 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2006/04/21 * 12
KAT6-01	Attenuator	INMET	18N-6dB	RE	2006/03/24 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/17 * 12
KCC-30/31/32/34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	RE	2005/12/22 * 12
KCC-33/34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	CE	2005/12/22 * 12
KLS-01	LISN(AMN)	Schwarzbeck	NSLK8126	CE	2006/04/19 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	CE/RE/BW/FT	2006/09/05 * 12
KOS-01	Humidity Indicator	Custom	CTH-190	RE	2006/07/14 * 24
KOS-02	Humidity Indicator	Custom	CTH-190	CE/BW/FT	2006/07/10 * 24
KJM-01	Measure	TAJIMA	GL19-55	RE/CE	-
KCH-01	Temperature and Humidity Chamber	Tabai Espec	PL-1KT	FT	2005/12/26 * 12
KSCA-01	Search coil	TSJ	SC01	BW/FT	Pre Check
KCC-B1	Coaxial Cable/Pulse Limitter/RF Relay Matrix	Fujikura/Suhner/PMM/TSJ	5D-2W/S04272B/12D-SFA/S04272B/PL01/-	BW/FT	2006/05/16 * 12
KLP-01	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE	2006/06/01 * 12

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

Test Item :

CE: Conducted emission
RE: Radiated emission
BW: Bandwidth
FT: Frequency tolerance