TEST REPORT

REGULATION : FCC Part15 Subpart C Section 15.225

Applicant	Testing Laboratory
Hitachi Information & Control Solutions, Ltd. 1-26, Omika-cho, 5-chome, Hitachi-shi Ibaraki-ken, 319-1221 Japan Tel.: +81 294 53 6142 Fax.: +81 294 53 6146	Intertek Japan K.K. Kashima Site 3-2 Sunayama, Kamisu, Ibaraki 314-0255 Japan Tel.: +81 479 40 1097 Fax.: +81 479 46 1788 URL: http://www.japan.intertek-etlsemko.com

Equipment Type	Finger Vein Authentication device for Door Access
Trademark	Hitachi-ICS
Model (s)	FVTC720
Serial No.	XR401301 0035
FCC ID	WLT-FVTC720
Test Result	Complied
Report Number	JK08080011
Report Issue Date	September 11, 2008

Approved by

Junichi Okada
[Site Manager]

Tested by

Katsuya Uchida

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SECTION 1. GENERAL INFORMATION

TEST PERFORMED

Location	Kashima No.12 Test Site (FCC Reg.: JP0008)
EUT Received	August 11, 2008
Date of Test	From August 11, 2008 to August 12, 2008
Standard Applied	FCC Part15C – Section 15.225
Measurement methods	ANSI C63.4-2003
Test Procedure	Document number : 03-10-003, 03-10-004
Deviation from Standard (s)	Not applicable

QUALIFICATIONS OF TESTING LABORATORY

ACCREDITATION	**SCOPE**	**LAB. CODE**	**Remarks**
NVLAP	EMC Testing	100290-0	USA
VLAC	EMC Testing	VLAC-008-1	JAPAN
BSMI	EMC Testing	SL2-IN-E-6008	TAIWAN
FILING			
VCCI	EMC Testing	R-788, C-278, C-279, T-351, T-352 R-274, C-280, C-281, T-353, T-359 R-272, C-276, C-277, T-360, T-361 R-576, C-590, T-362	JAPAN
FCC	EMC Testing	Designation Number : JP0008	USA
IC	EMC Testing	2065A-1, 2065A-3	CANADA
SAUDI ARABIA	EMC Testing	N/A	

ABBREVIATIONS

EUT	Equipment Under Test	DoC	Declaration of Conformity
AMN	Artificial Mains Network	ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network	Q-P	Quasi-peak
AMP	Amplifier	AVG	Average
ATT	Attenuator	PK	Peak
ANT	Antenna	Cal	Calibration
BBA	Broadband Antenna	N/A	Not applicable
DIP	Dipole Antenna	LCD	Liquid-Crystal Display
AE	Associated Equipment		

SECTION 2. SUMMARY OF TEST RESULTS

The minimum margins to the limits are as follows:

Test	Reference <FCC>	Result
AC Conducted Emission	15.207	Pass
Field Strength Emission	15.225 (a)	Pass
Spurious Emissions – Radiated	15.225 (d) 15.209 15.205	Pass
Frequency Tolerance	15.225 (e)	Pass

Note: 1. See Section 10 for details.

< Measurement data correction >

* Conducted disturbance at mains terminals
  Emission Level [dBµV] = Meter Reading [dBµV] + Factor [dB]
  Margin [dB] = Limit [dBµV] - Emission Level [dBµV]
  * Factor = LISN Factor + Cable Loss + ATT

* Radiated disturbance
  Emission Level [dBµV/m] = Meter Reading [dBµV] + Factor [dB/m]
  Margin [dB] = Limit [dBµV/m] - Emission Level [dBµV/m]
  * Factor = Antenna Factor + Cable Loss - Amplifier Gain + ATT
  (– Distance Conversion Factor)

SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following apparatus.

3.1 List of System Configuration

Symbol	Item	Model No.	Serial No.	Manufacturer	FCC ID
A1	Terminal Unit	FVTC720	XR401301 0035	Hitachi Information & Control Solutions, Ltd.	WLT-FVTC720
A2	I/O Box	FB720	XR401401 0035	Hitachi Information & Control Solutions, Ltd.	N.A.
Power Ratings of EUT : DC 12 V, 0.8 A (Input Voltage range: DC 11.4 V – 12.6 V)					
Power Supply : DC 12 V, 0.6 A (A1) / DC 12 V, 0.2 A (A2)					
Condition of Equipment	Production				
Type	Wall-hanging				
Suppression Devices	No Modifications by the laboratory were made to the device				

3.2 Overview of EUT

Carrier Frequency	13.56 MHz
Modulation Method	Amplitude Shift Keying
RF Output Power	59.2 dBuV/m (at 3.0m : Measurement value)

3.3 Port(s)/Connector(s)

Port Name	Connector Type	Connector Pin	Remarks
RS485 (Terminal unit~ I/O Box)	Terminal	2pin	
Wiegand	Terminal	6pin	
LAN	RJ45	8pin	
Power	Terminal	2pin	

3.4 Highest Frequency Oscillator(s) / Crystal (s)

Oscillator	Operating Frequency	Board Name	Remarks
12 MHz	192 MHz	CPU Board (SZC700)	

3.5 Frequency Range of Measurements

AC Conducted Emission	0.15 – 30 MHz
Spurious Emission – Radiated (Magnetic Field)	0.009 – 30 MHz
Spurious Emission – Radiated (Electric Field)	30 – 1000 MHz

SECTION 4. SUPPORT EQUIPMENT(S)

The EUT was supported by the following equipment during the test.

Symbol	Item	Model No.	Serial No.	Manufacturer	FCC ID
B	iClass Smart Card	iCLASS 16K/2	1*00046 31021091-1	HID	N.A.
C	AC Adapter	US318-12	612-0297564	UNIFIVE	DoC
Power Supply :					
C	AC 120 V, 60 Hz				

SECTION 5. USED CABLE (S)

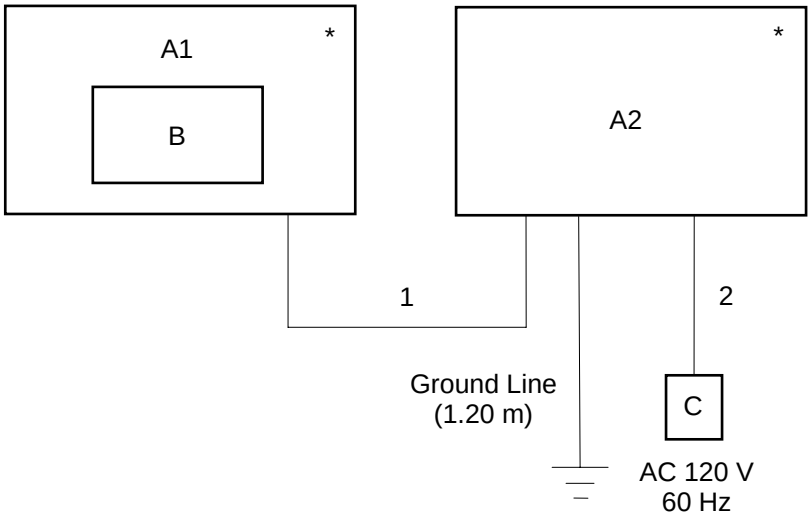
The following cable(s) was used for the test.

No.	Name	Length (m)	Shield	Metal Connector	Ferrite Core
1	RS485 cable	5.00	Yes	No	
2	Power cable for I/O Box (DC)	1.80	No	No	

Note: No ferrite core is attached to the outer cables.

SECTION 6. TEST CONFIGURATION

* : EUT



The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

SECTION 7. OPERATING CONDITION

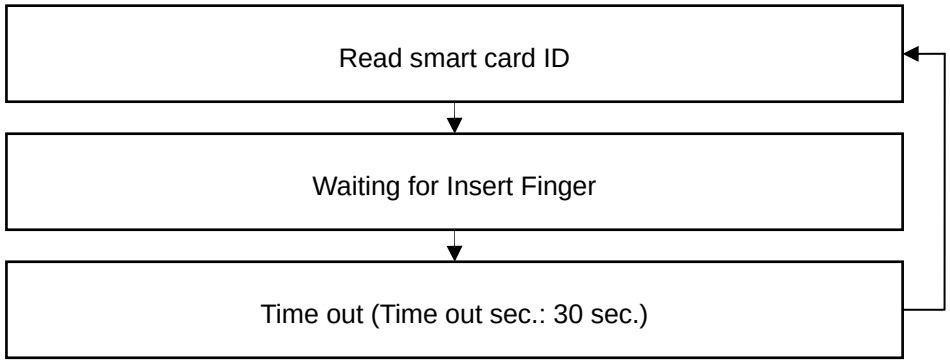
The EUT was operated under the following conditions during the test.

7.1 Operating Condition

The test was carried out under Finger Vein Authentication device's Test of Door Access mode.
EUT was examined in the operating conditions that had maximum emissions.

7.2 Operating Flow [Finger Vein Authentication device's Test of Door Access mode]

Following operations were performed continuously.

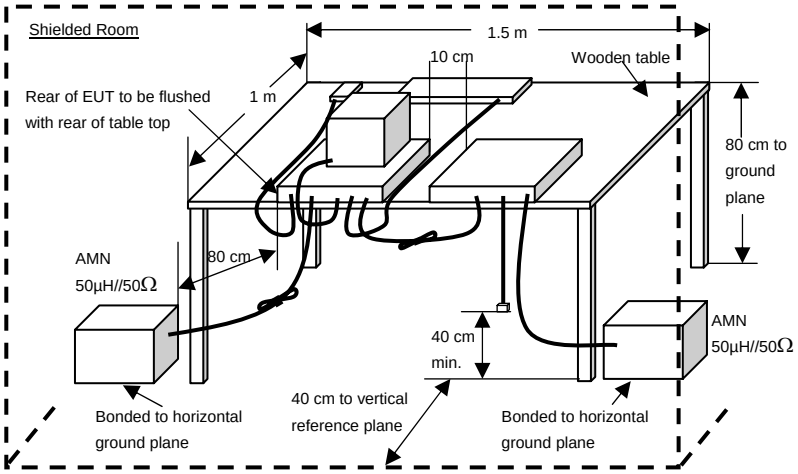


SECTION 8. TEST PROCEDURE(S)

Test was carried out under the following conditions.

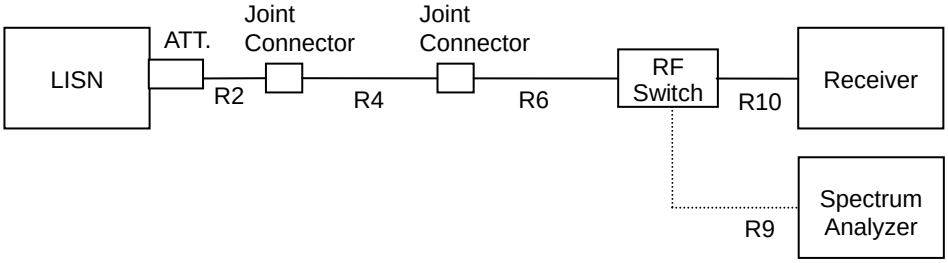
AC Conducted Emission

Test setup



* Reference Ground plane : greater than 2 x 2m

Schema for the AC conducted emission measurement



Instrument setup

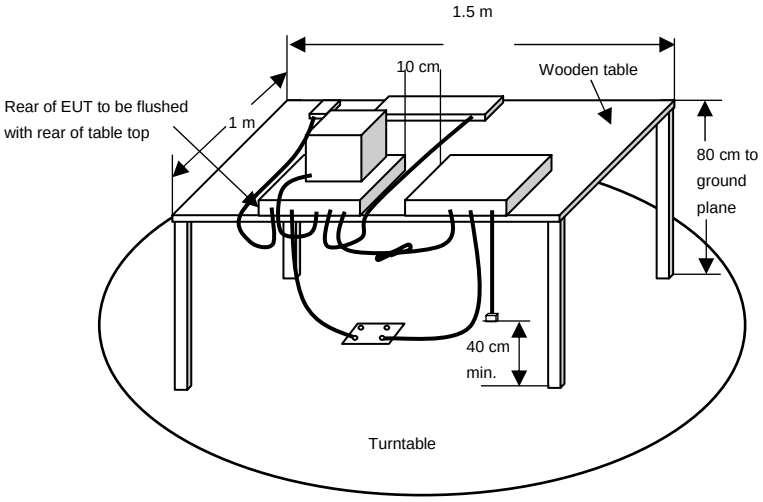
Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
0.15 – 30	Receiver	Quasi Peak	10 kHz	N/A.
		Average	10 kHz	N/A.

[Preliminary Measurement]
EUT is tested on all operating conditions.
The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart is plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.
All leads other than safety ground are tested.

[Final Measurement]
The EUT is operated in the worst emission condition found by the preliminary test.
The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.
At least six highest spectrum are measured in quasi-peak and average (if necessary) using the test receiver.

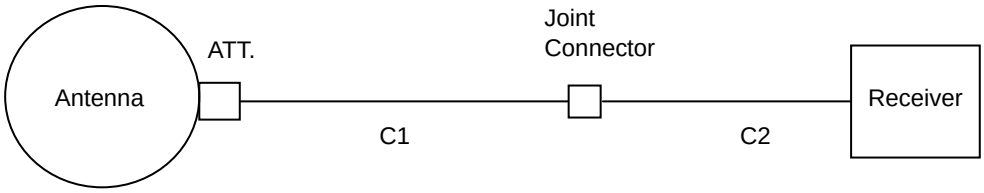
Field Strength Emission & Spurious Emission - Radiated

Test setup

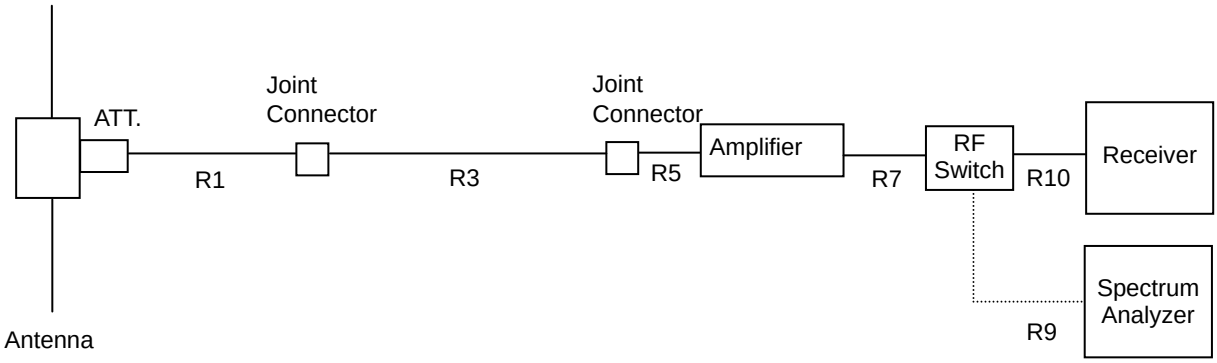


Schema for the field strength emission & spurious emission radiated magnetic field measurement

< Below 30MHz >



Schema for the spurious emission radiated electric field measurement < 30 - 1000MHz >



< Below 30MHz >

[Instrument Setup]

Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
0.009 to 0.15	Receiver	Quasi Peak	200 Hz	N.A.
0.15 to 30	Receiver	Quasi Peak	10 kHz	N.A.

[Preliminary Measurement]
EUT is tested on all operating conditions.
The Loop antenna is used for Magnetic field measurements on the frequency range 0.009 – 30 MHz.
The antenna mast is attachable to the Loop antenna and antenna's center height is set 1 meter above the ground.
Antenna angle is adjustable 0 to 360 degree and antenna polarization is also changed. (vertical and horizontal)
The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

[Final Measurement]
The EUT operated in the worst emission condition found by the preliminary test.
The turntable azimuth (EUT direction) and antenna angle are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.
The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.
Higher spectrum is measured by the test receiver (quasi-peak).

< 30 - 1000MHz >

[Instrument Setup]

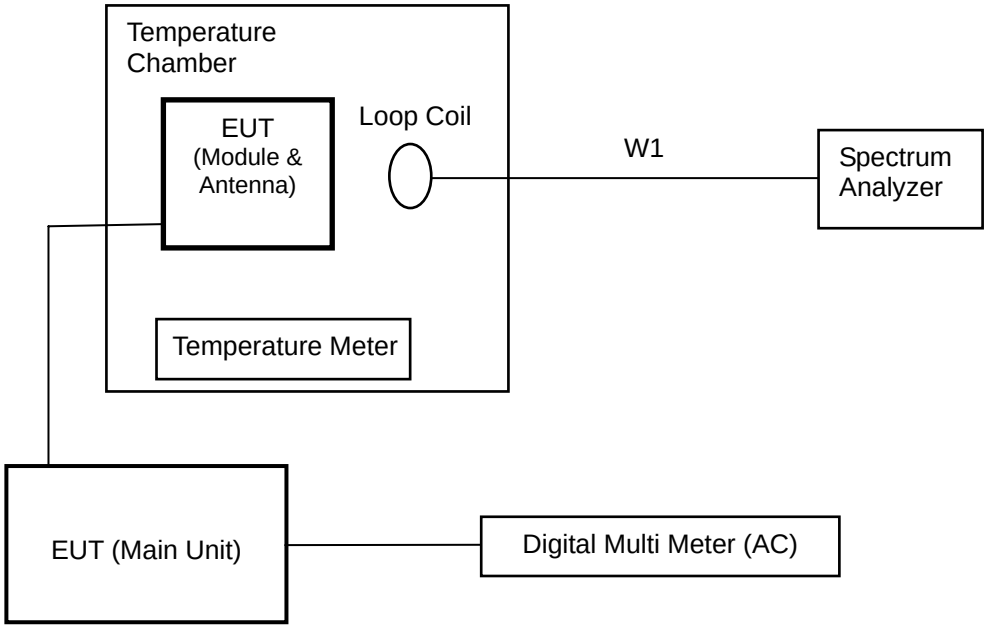
Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Receiver	Quasi Peak	120 kHz	N.A.

[Preliminary Measurement]
EUT is tested on all operating conditions.
The broadband Tri-Log antenna is used for Electric field measurements on the frequency range 30 – 1000 MHz.
The antenna mast is attachable to the broadband Tri-Log and antenna height is adjustable 1 to 4 meters continuously, and antenna polarization is also changed. (vertical and horizontal)
The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

[Final Measurement]
The EUT operated in the worst emission condition found by the preliminary test.
The turntable azimuth (EUT direction) and antenna height (1 to 4 meters) are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.
The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.
At least six highest spectrum are measured by the test receiver (quasi-peak).
When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

Frequency Tolerance

Schema for the voltage variation & temperature measurement



[Preliminary Measurement]
EUT is tested on all operating conditions.
Set the temperature 20 degrees C.
The power supply voltage to the EUT was varied from 85% to 115% of the normal value measured at the input to the EUT.

[Final Measurement]
Set the temperature - 20 degrees C.
Leave the EUT for 1 hour after it became the temperature that was set up.
Set the temperature 50 degrees C by 10 degrees C.

SECTION 9. MEASUREMENT UNCERTAINTY

Radiated disturbance at 3m	
30 MHz – 1000 MHz Above 1 GHz	+/- 3.8 dB +/- 4.3 dB
Radiated disturbance at 10m	
30 MHz – 1000 MHz Above 1 GHz	+/- 5.5 dB +/- 4.3 dB
Radiated disturbance at 30m	
	N/A
Radiated disturbance (power)	
11.7 GHz – 12.7 GHz	+/- 3.8 dB
Conducted disturbance at mains terminals	
9 kHz – 30 MHz	+/- 3.0 dB
Conducted disturbance at telecommunication ports (voltage)	
9 kHz – 30 MHz	+/- 3.4 dB
Conducted disturbance at telecommunication ports (current)	
9 kHz – 30 MHz	+/- 1.3 dB
Conducted disturbance at terminals	
150 kHz – 30 MHz	+/- 1.0 dB
Disturbance power	
30 MHz – 300 MHz	+/- 4.9 dB
Radiated Magnetic Field	
9 kHz – 30 MHz	+/- 2.94 dB
Frequency Stability	
-20 - +50deg.C	+/- 0.02 ppm

Note on Radiated Electric Field measurement uncertainty

The following items are not included in the calculations in spite of their own uncertainty components because it is impracticable to find the value.
It is our problem awaiting solution in future.

(1) Repeatability of measurement
It is not possible to calculate repeatability since the measurement was carried out only one time.

(2) Antenna factor variation
The definition of measured (radiated electric field strength) is not completed on the referred standard(s).

(3) Loss of EUT radiation propagation
It is certainly one of the uncertainty components, however is not able to calculate.

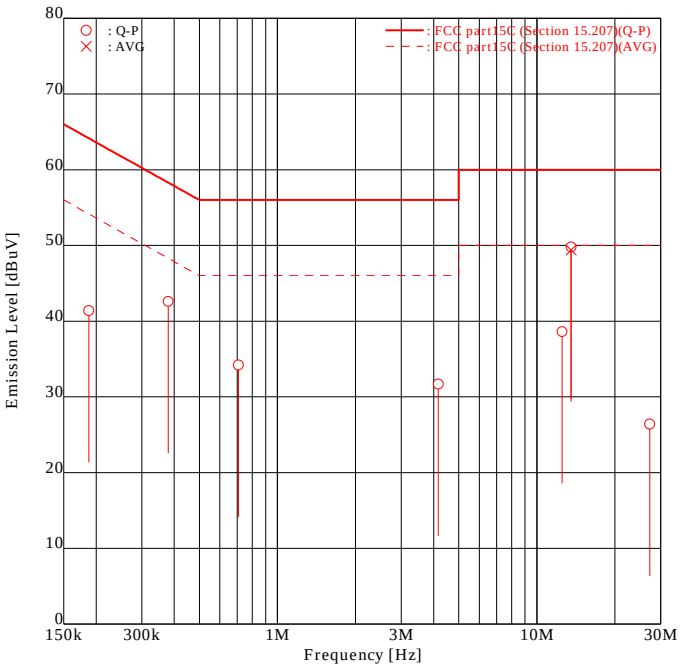
Please note that these uncertainties are not reflected to the compliance judgment of the test results in this report.

SECTION 10. EVALUATION OF TEST RESULTS

10.1 AC Conducted Emission Test

Intertek Japan K.K.
Kashima No.12 Test Site
AC Conducted Emission Test

APPLICANT	: Hitachi Information & Control Solutions,Ltd
EUT NAME	: Finger Vein Authentication device for Door Access
MODEL NO.	: FVTC720
SERIAL NO.	: XR401301 0035
TEST MODE	: Finger Vein Authentication device's Test of Door Access
POWER SOURCE	: DC12V
DATE TESTED	: Aug 12 2008
FILE NO.	: JK08080011
REGULATION	: FCC part15C (Section 15.207)
TEST METHOD	: ANSI C63.4-2003
TEMPERATURE	: 24.0 [degC]
HUMIDITY	: 56.0 [%]
NOTE	:



ENGINEER : Katsuya Uchida

[No]	FREQUENCY [MHz]	MODE	READING [dBuV] Line1	READING [dBuV] Line2	FACTOR [dB] Line1	FACTOR [dB] Line2	EMISSION [dBuV] Line1	EMISSION [dBuV] Line2	LIMIT [dBuV]	MARGIN [dB] Line1	MARGIN [dB] Line2
1	0.1876	Q-P	35.3	32.8	6.1	6.1	41.4	38.9	64.1	22.7	25.2
2	0.3792	Q-P	36.5	34.5	6.1	6.1	42.6	40.6	58.3	15.7	17.7
3	0.7076	Q-P	28.0	26.4	6.2	6.3	34.2	32.7	56.0	21.8	23.3
4	4.1697	Q-P	25.1	20.4	6.6	6.6	31.7	27.0	56.0	24.3	29.0
5	12.5036	Q-P	31.4	30.0	7.2	7.2	38.6	37.2	60.0	21.4	22.8
6	13.5600	Q-P	42.6	42.5	7.2	7.2	49.8	49.7	60.0	10.2	10.3
7	13.5600	AVG	42.2	42.1	7.2	7.2	49.4	49.3	50.0	**0.6**	0.7
8	27.2472	Q-P	18.3	18.5	7.6	7.9	25.9	26.4	60.0	34.1	33.6

Higher six points are underlined.
Other frequencies : Below the FCC part15C (Section 15.207) limit
Emisson Level = Read + Factor(LISN,Pad,Cable)

emiT 3, 0, 0, 0

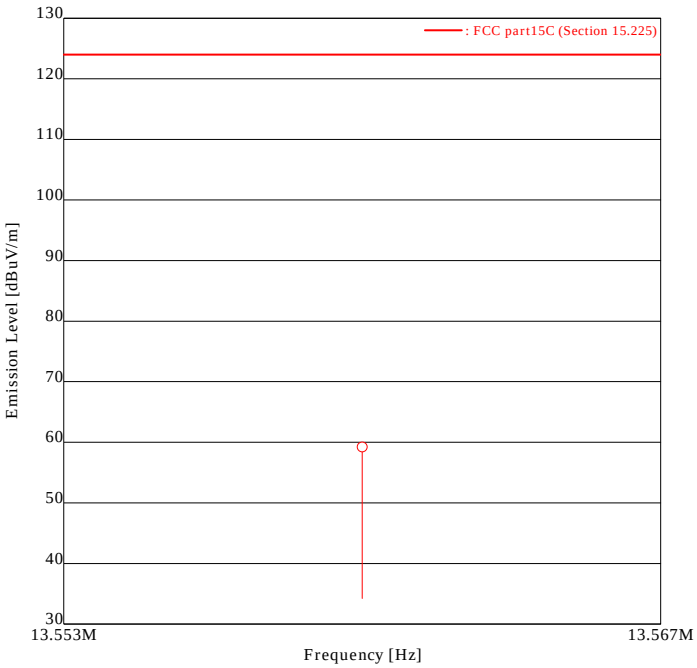
10.2 Field Strength Emission Test

Intertek Japan K.K.

Kashima No.12 Test Site

Field Strength Emission Test

APPLICANT	: Hitachi Information & Control Solutions,Ltd.
EUT NAME	: Finger Vein Authentication device for Door Access
MODEL NO.	: FVTC720
SERIAL NO.	: XR401301 0035
TEST MODE	: Finger Vein Authentcication device's Test of Door Access
POWER SOURCE	: DC12V
DATE TESTED	: Aug 12 2008
FILE NO.	: JK08080011
REGULATION	: FCC part15C (Section 15.225)
TEST METHOD	: ANSI C63.4-2003
DISTANCE	: 3.00 [m]
TEMPERATURE	: 19.0 [degC]
HUMIDITY	: 54.0 [%]
NOTE	:



ENGINEER : Katsuya Uchida

[No]	FREQUENCY [MHz]	READING [dBuV] Hori	READING [dBuV] Vert	FACTOR [dB] Hori	FACTOR [dB] Vert	EMISSION [dBuV/m] Hori	EMISSION [dBuV/m] Vert	LIMIT [dBuV/m]	MARGIN [dB] Hori	MARGIN [dB] Vert
1	13.5600	29.5	33.5	25.7	25.7	55.2	59.2	124.0	68.8	**64.8**

Higher six points are underlined.
Other frequencies : Below the FCC part15C (Section 15.225) limit
Emisson Level = Read + Factor(Antenna, Pad, Cable)

emiT 3, 0, 0, 0

10.3 Spurious Emissions – Radiated Test

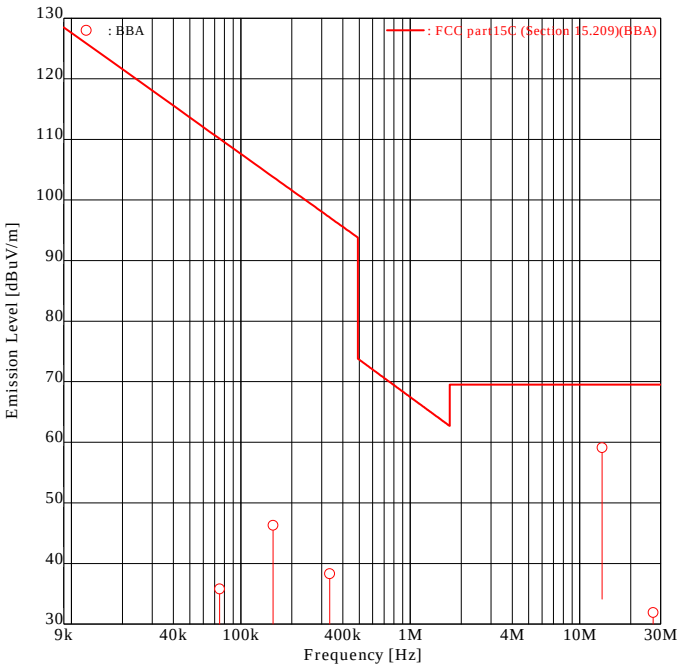
10.3.1 Finger Vein Authentication device's Test of Door Access mode (9kH – 30MHz)

Intertek Japan K.K.

Kashima No.12 Test Site

Spurious Emissions - Radiated Test

APPLICANT	: Hitachi Information & Control Solutions,Ltd
EUT NAME	: Finger Vein Authentication device for Door Access
MODEL NO.	: FVTC720
SERIAL NO.	: XR401301 0035
TEST MODE	: Finger Vein Authentication device's Test of Door Access
POWER SOURCE	: DC12V
DATE TESTED	: Aug 12 2008
FILE NO.	: JK08080011
REGULATION	: FCC part15C (Section 15.209)
TEST METHOD	: ANSI C63.4-2003
DISTANCE	: 3.00 [m]
TEMPERATURE	: 24.0 [degC]
HUMIDITY	: 54.0 [%]
NOTE	:



ENGINEER : Katsuya Uchida

[No]	FREQUENCY [MHz]	READING [dBuV] Hori	Vert	FACTOR [dB] Hori	Vert	EMISSION [dBuV/m] Hori	Vert	LIMIT [dBuV/m]	MARGIN [dB] Hori	Vert
1	0.0749	8.0	10.5	25.3	25.3	33.3	35.8	110.1	76.8	74.3
2	0.1546	19.5	21.0	25.3	25.3	44.8	46.3	103.8	59.0	57.5
3	0.3345	11.0	13.0	25.3	25.3	36.3	38.3	97.1	60.8	58.8
4	13.5600	29.5	33.5	25.6	25.6	55.1	59.1	69.5	14.4	**10.4**
5	17.9840	2.5	1.0	25.9	25.9	28.4	26.9	69.5	41.1	42.6
6	27.1200	5.0	3.0	26.9	26.9	31.9	29.9	69.5	37.6	39.6

Higher six points are underlined.
Other frequencies : Below the FCC part15C (Section 15.209) limit
Emisson Level = Read + Factor(Antenna, Pad, Cable)

emiT 3, 0, 0, 0

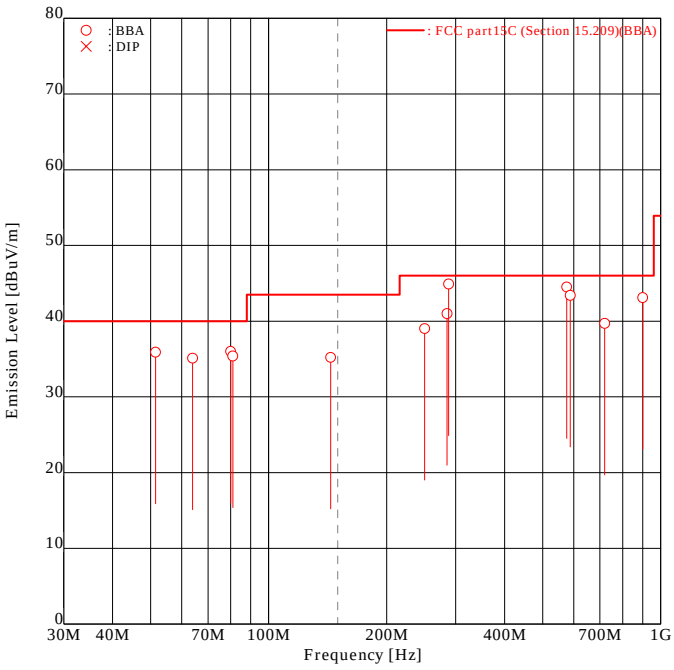
10.3.2 Finger Vein Authentication device's Test of Door Access mode (30MHz – 1000MHz)

Intertek Japan K.K.

Kashima No.12 Test Site

Spurious Emissions - Radiated Test

APPLICANT	: Hitachi Information & Control Solutions,Ltd
EUT NAME	: Finger Vein Authentication device for Door Access
MODEL NO.	: FVTC720
SERIAL NO.	: XR401301 0035
TEST MODE	: Finger Vein Authentication device's Test of Door Access
POWER SOURCE	: DC12V
DATE TESTED	: Aug 11 2008
FILE NO.	: JK08080011
REGULATION	: FCC part15C (Section 15.209)
TEST METHOD	: ANSI C63.4-2003
DISTANCE	: 3.00 [m]
TEMPERATURE	: 21.0 [degC]
HUMIDITY	: 58.0 [%]
NOTE	:



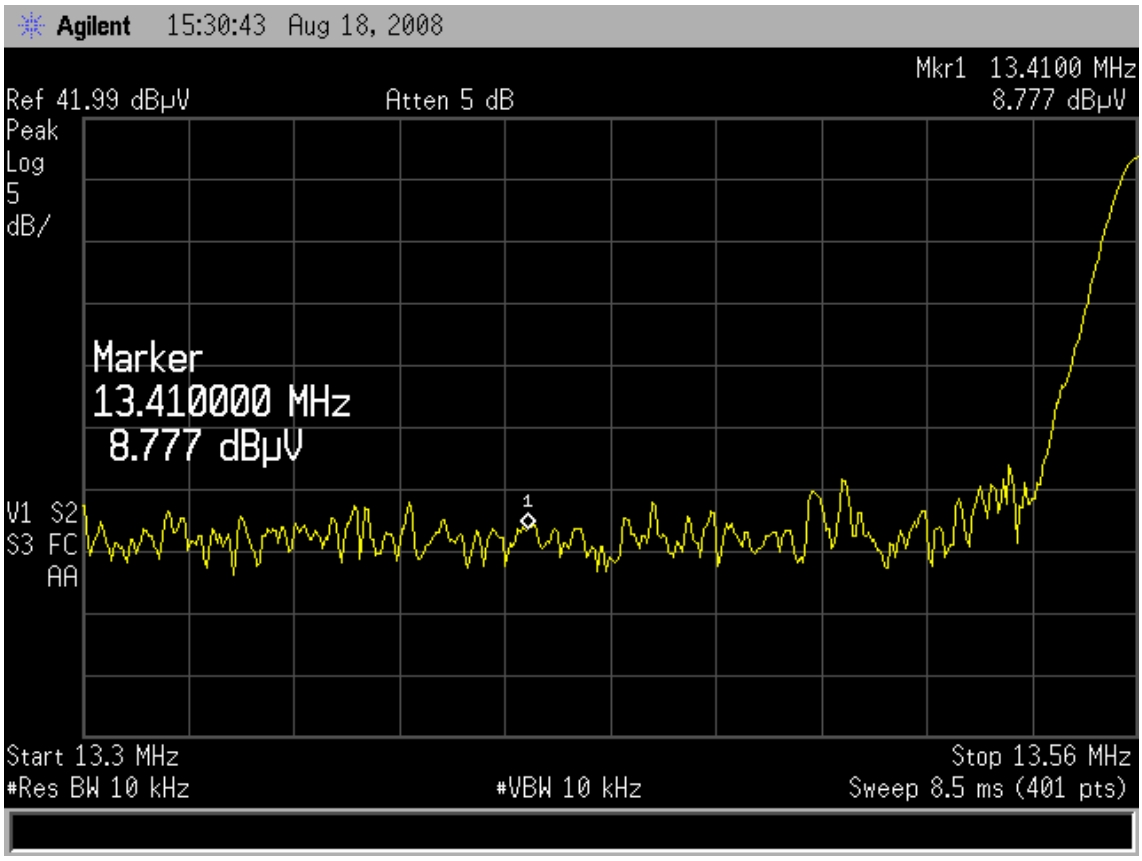
ENGINEER : Katsuya Uchida

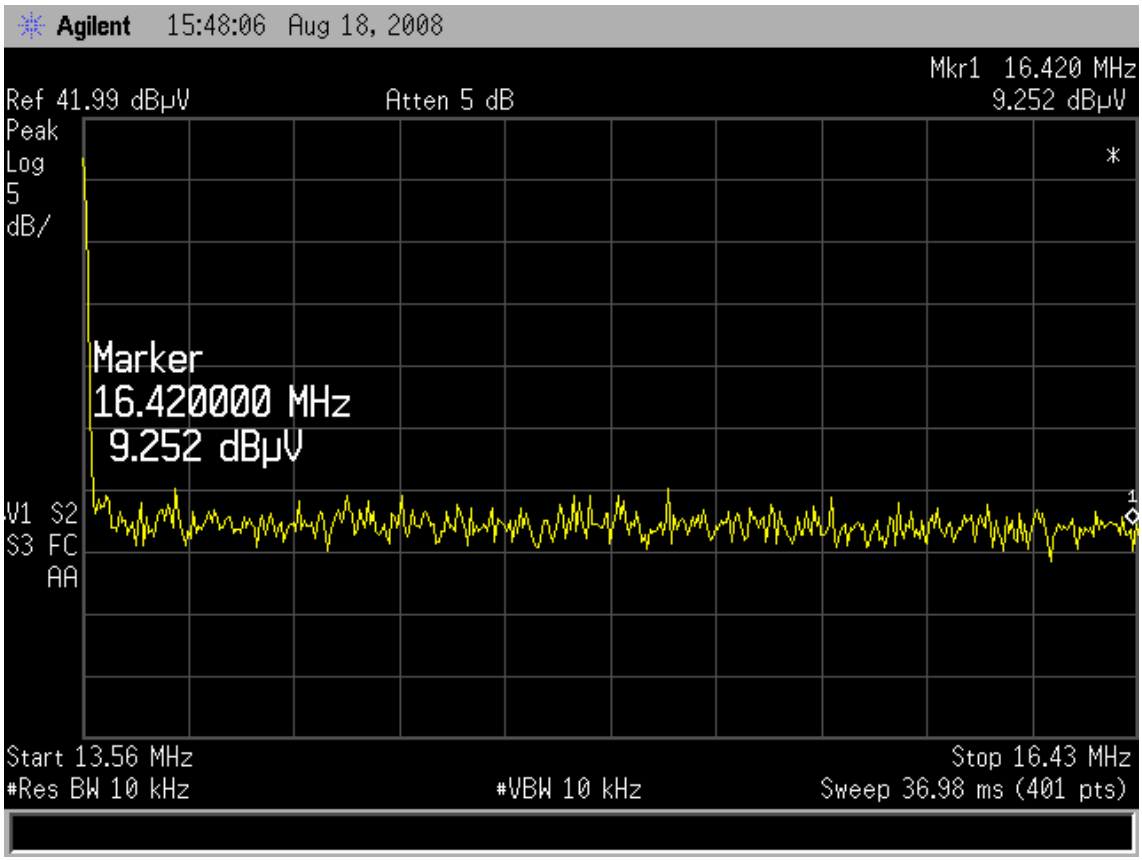
[No]	FREQUENCY [MHz]	ANT.	READING [dBuV] Hori	READING [dBuV] Vert	FACTOR [dB] Hori	FACTOR [dB] Vert	EMISSION [dBuV/m] Hori	EMISSION [dBuV/m] Vert	LIMIT [dBuV/m]	MARGIN [dB] Hori	MARGIN [dB] Vert
1	51.50	BBA	-	36.9	-1.0	-1.0	-	35.9	40.0	-	4.1
2	64.00	BBA	-	39.8	-4.7	-4.7	-	35.1	40.0	-	4.9
3	80.00	BBA	-	43.9	-7.9	-7.9	-	36.0	40.0	-	4.0
4	81.00	BBA	-	43.2	-7.8	-7.8	-	35.4	40.0	-	4.6
5	144.00	BBA	-	40.2	-5.0	-5.0	-	35.2	43.5	-	8.3
6	250.00	BBA	39.0	-	0.0	0.0	39.0	-	46.0	7.0	-
7	285.26	BBA	40.5	-	0.5	0.5	41.0	-	46.0	5.0	-
8	288.00	BBA	44.2	-	0.7	0.7	44.9	-	46.0	**1.1**	-
9	576.00	BBA	36.5	34.6	8.0	8.0	44.5	42.6	46.0	1.5	3.4
10	588.00	BBA	35.1	-	8.3	8.3	43.4	-	46.0	2.6	-
11	720.00	BBA	28.9	-	10.8	10.8	39.7	-	46.0	6.3	-
12	900.00	BBA	29.0	23.3	14.1	14.1	43.1	37.4	46.0	2.9	8.6

Higher six points are underlined.
Other frequencies : Below the FCC part15C (Section 15.209) limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

emiT 3, 0, 0, 0

10.4 Restricted bands of operation





10.5 Frequency Tolerance

Tested Date : August 19, 2008
Limit : 0.01%(100[ppm]) = 13.561356 [MHz]
: -0.01%(100[ppm]) = 13.558644 [MHz]
Engineer : Katsuya Uchida

Degree C	Supply Voltage [v] DC		Time after stabilization [min]	Operation Frequency [MHz]	Frequency Shift [%]	Result
50	100%	12	startup	13.5600	0.0000	Pass
			2	13.5600	0.0000	Pass
			5	13.5605	0.0037	Pass
			10	13.5605	0.0037	Pass
40	100%	12	startup	13.5600	0.0000	Pass
			2	13.5598	-0.0015	Pass
			5	13.5603	0.0022	Pass
			10	13.5603	0.0022	Pass
30	100%	12	startup	13.5600	0.0000	Pass
			2	13.5595	-0.0037	Pass
			5	13.5605	0.0037	Pass
			10	13.5598	-0.0015	Pass
20	85%	10.2	startup	13.5603	0.0022	Pass
			2	13.5598	-0.0015	Pass
			5	13.5605	0.0037	Pass
			10	13.5598	-0.0015	Pass
	100%	12	startup	13.5600	0.0000	Reference
			2	13.5603	0.0022	Pass
			5	13.5608	0.0059	Pass
			10	13.5600	0.0000	Pass
	115%	13.8	startup	13.5600	0.0000	Pass
			2	13.5605	0.0037	Pass
			5	13.5608	0.0059	Pass
			10	13.5605	0.0037	Pass
10	100%	12	startup	13.5605	0.0037	Pass
			2	13.5610	0.0074	Pass
			5	13.5605	0.0037	Pass
			10	13.5605	0.0037	Pass
0	100%	12	startup	13.5608	0.0059	Pass
			2	13.5603	0.0022	Pass
			5	13.5608	0.0059	Pass
			10	13.5600	0.0000	Pass
-10	100%	12	startup	13.5595	-0.0037	Pass
			2	13.5600	0.0000	Pass
			5	13.5610	0.0074	Pass
			10	13.5608	0.0059	Pass
-20	100%	12	startup	13.5605	0.0037	Pass
			2	13.5603	0.0022	Pass
			5	13.5608	0.0059	Pass
			10	13.5600	0.0000	Pass

Tested Date : August 19, 2008
Limit : 0.01%(100[ppm]) = 13.561856 [MHz]
: -0.01%(100[ppm]) = 13.559144 [MHz]
Engineer : Katsuya Uchida

Degree C	Supply Voltage [v] DC		Time after stabilization [min]	Operation Frequency [MHz]	Frequency Shift [%]	Result
50	100%	24	startup	13.5603	-0.0015	Pass
			2	13.5603	-0.0015	Pass
			5	13.5600	-0.0037	Pass
			10	13.5603	-0.0037	Pass
40	100%	24	startup	13.5608	0.0022	Pass
			2	13.5608	0.0022	Pass
			5	13.5605	0.0000	Pass
			10	13.5600	-0.0037	Pass
30	100%	24	startup	13.5605	0.0000	Pass
			2	13.5603	-0.0015	Pass
			5	13.5598	-0.0052	Pass
			10	13.5605	0.0000	Pass
20	85%	20.4	startup	13.5608	0.0022	Pass
			2	13.5608	0.0022	Pass
			5	13.5600	-0.0037	Pass
			10	13.5608	0.0022	Pass
	100%	24	startup	13.5605	0.0000	Reference
			2	13.5598	-0.0052	Pass
			5	13.5603	-0.0015	Pass
			10	13.5600	-0.0037	Pass
	115%	27.6	startup	13.5603	-0.0015	Pass
			2	13.5603	-0.0015	Pass
			5	13.5595	-0.0074	Pass
			10	13.5603	-0.0015	Pass
10	100%	24	startup	13.5605	0.0000	Pass
			2	13.5608	0.0022	Pass
			5	13.5605	0.0000	Pass
			10	13.5608	0.0022	Pass
0	100%	24	startup	13.5600	-0.0037	Pass
			2	13.5603	-0.0015	Pass
			5	13.5595	-0.0074	Pass
			10	13.5595	-0.0074	Pass
-10	100%	24	startup	13.5605	0.0000	Pass
			2	13.5598	-0.0052	Pass
			5	13.5603	-0.0015	Pass
			10	13.5603	-0.0015	Pass
-20	100%	24	startup	13.5600	-0.0037	Pass
			2	13.5605	0.0000	Pass
			5	13.5608	0.0022	Pass
			10	13.5600	-0.0037	Pass

SECTION 11. LIST OF MEASURING INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
AC Conducted Emission					
LISN (EUT)	ESH2-Z5	881492/014	ROHDE & SCHWARZ	Oct. 25, 07	Oct. 31, 08
6dB Attenuator	CFA-01	None	TME	May 02, 08	May 31, 09
Test Receiver	ESS	847151/012	ROHDE & SCHWARZ	Feb. 07, 08	Feb. 28, 09
RF Switch	ACX-150-1	None	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	RG-5A/U(16.0m)	R2	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	RG-5A/U(7.0m)	R4	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	RG-5A/U(4.0m)	R6	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	5D-2W(1.5m)	R9	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	5D-2W(1.2m)	R10	Intertek Japan	May 02, 08	May 31, 09
Field Strength Emission					
Loop Antenna	HFH2-Z2	843768/005	ROHDE & SCHWARZ	Dec. 21, 07	Dec. 31, 08
6dB Attenuator	CFA-01	None	TME	Aug. 30, 07	Aug. 31, 08
Test Receiver	ESH2	880370/043	ROHDE & SCHWARZ	Oct. 18, 07	Oct. 31, 08
Coaxial cable	RG-5A/U(10.4m)	MR1	Intertek Japan	Aug. 30, 07	Aug. 31, 08
Spurious Emission					
Loop Antenna	HFH2-Z2	843768/005	ROHDE & SCHWARZ	Dec. 21, 07	Dec. 31, 08
Bi-cog antenna	LPB-2513/A	1103	ARA	Sep. 14, 07	Sep. 30, 08
6dB Attenuator	CFA-01	None	TME	Aug. 30, 07	Aug. 31, 08
6dB Attenuator	MP721B	M57593	ANRITSU	May 02, 08	May 31, 09
Amplifier	ZX60-3018G	002	Intertek Japan	May 02, 08	May 31, 09
Test Receiver	ESH2	880370/043	ROHDE & SCHWARZ	Oct. 18, 07	Oct. 31, 08
Test Receiver	ESS	847151/012	ROHDE & SCHWARZ	Feb. 07, 08	Feb. 28, 09
RF Switch	ACX-150-1	None	Intertek Japan	May 02, 08	May 31, 09
Site Attenuation				May 08, 08	May 31, 09
Coaxial cable	RG-5A/U(10.4m)	MR1	Intertek Japan	Aug. 30, 07	Aug. 31, 08
Coaxial cable	RG-5A/U(14.0m)	R1	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	RG-5A/U(7.0m)	R3	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	RG-5A/U(4.0m)	R5	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	5D-2W(0.7m)	R7	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	5D-2W(1.5m)	R9	Intertek Japan	May 02, 08	May 31, 09
Coaxial cable	5D-2W(1.2m)	R10	Intertek Japan	May 02, 08	May 31, 09

Restricted bands of operation					
Loop Antenna	HFH2-Z2	843768/005	ROHDE & SCHWARZ	Dec. 21, 07	Dec. 31, 08
6dB Attenuator	CFA-01	None	TME	Aug. 30, 07	Aug. 31, 08
Spectrum Analyzer	E7403A	MY42000062	Agilent	Dec. 19, 07	Dec. 31, 08
Coaxial cable	RG-5A/U(10.4m)	MR1	Intertek Japan	Aug. 30, 07	Aug. 31, 08
Frequency Tolerance					
Spectrum Analyzer	E7403	MY42000062	Agilent	Dec. 19, 07	Dec. 31, 08
Temperature Meter	PC-5000TRH-II	A11999972	Sato	Mar. 14, 08	Mar. 31, 09
Temperature Chamber	PL-3FP	5103661	TABAI ESPEC	N.A.	N.A.
Coaxial cable	RG-58C/U(1.5m)	AM90C04	Pacific custom	Aug. 31, 07	Aug. 31, 08
Testing Software : emiT (Version 3,0,0,0)					

Note : Test instruments are calibrated according to Quality Manual and Calibration Rules of Intertek Japan K.K.