Electromagnetic Emission

F C C M E A S U R E M E N T R E P O R T

CERTIFICATION OF COMPLIANCE

FCC Part 15 Certification Measurement

PRODUCT	:	Access Reader
MODEL/TYPE NO	:	BioEntry FC
FCC ID	:	TKWBIOENTRYFC
APPLICANT	:	Suprema Inc. 16F Parkview Office Tower, Jeongja-dong, Bundang-gu, Seongnam, Gyeonggi, 463-863 Korea Attn.: Dongmok, Shin / Chief Research Engineer
MANUFACTURE	:	Same as applicant
FCC CLASSIFICATION	:	Part 15 Low Power Communication Device Transmitter
FCC RULE PART(S)	:	FCC Part 15 Subpart C
FCC PROCEDURE	:	Certification
TRADE NAME	:	BioEntry™
TEST REPORT No.	:	E05.0831.FCC.518N
DATES OF TEST	:	July 11 – August 31, 2005
DATES OF ISSUE	:	August 31, 2005
TEST LABORATORY	:	ETL Inc. (FCC Registration Number : 95422) #584 Sangwhal-ri, Kanam-myon, Yoju-kun, Kyounggi-do, 469-885, Korea Tel : (031) 885-0072 Fax : (031) 885-0074

This is Access Reader; Model BioEntry FC has been tested in accordance with the measurement procedures specified in ANSI C63.4-2001 at the ETL/EMC Test Laboratory and has been show to be complied with the electromagnetic radiated emission limits specified in FCC Rule Part15 Subpart C:
I attest to the accuracy of data. All measurement herein was performed by me or was made under my supervision and is correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.
The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

H.S, Lee / Chief Engineer

ETL Inc.

#584 Sangwhal-ri, Kanam-myon, Yoju-kun,
Kyounggi-do, 469-885, Korea

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EMC Lab : #584 Sangwhal-ri, Kanam-myon, Yoju-kun, Kyounggi-do, 469-885, Korea /Tel:82-31-885-0072, Fax:82-31-885-0074

Scope – *Measurement and determination of electromagnetic emission(EME) of radio frequency devices including intentional radiators and/or unintentional radiators for compliance with the technical rules and regulations of the U.S Federal Communications Commission(FCC)*

General Information

Applicant Name : Suprema Inc.

Address : 16F Parkview Office Tower, Jeongja-dong, Bundang-gu, Seongnam, Gyeonggi, 463-863 Korea

Attention : Dongmok Shin / Chief Research Engineer

- **EUT Type :** Access Reader
- **Model Number :** BioEntry FC
- **FCC ID :** TKWBIOENTRYFC
- **S/N :** N/A
- **FCC Rule Part(s) :** FCC Part 15 Subpart C
- **Test Procedure :** ANSI C63.4-2001
- **FCC Classification :** Part 15 Low Power Communication Device Transmitter
- **Dates of Tests :** July 11 – August 31, 2005
  ETL Inc.
  EMC Testing Lab (FCC Registration Number : 95422)
- **Place of Tests :** 584, Sangwhal-Ri, Kanam-Myun, Yoju-Kun,
  Kyounggi-Do, Korea
  Tel : (031) 885-0072 Fax : (031) 885-0074
- **Test Report No. :** E05.0831.FCC.518N

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1. INTRODUCTION

The measurement were conducted at the open area test site of E-RAE Testing Laboratory Inc. facility located at 584, Sangwhal-ri, Ganam-myun, Youju-kun, Kyoungki-do, Korea. The open area test site is constructed in conformance with the requirements of the ANSI C63.4-2001 and CISPR Publication 16. The ETL has site descriptions on file with the FCC for 3 and 10 meter site configurations. Detailed description of test facility was found to be in compliance with the requirements of Section 2.948 FCC Rules according to the ANSI C63.4-2001 and registered to the Federal Communications Commission(Registration Number : 95422).

The measurement procedure described in American national standard for method of measurement of radio-noise emission from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz (ANSI C.63.4-2001) was used in determining radiated and conducted emissions from the Superma Inc. Model: BioEntry FC

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2. PRODUCT INFORMATION

2.1 General Remark

2.2 Equipment Description

BioEntry™Smart is a fingerprint smart card reader that seamlessly integrates fingerprint and smart card reader into one device. BioEntry™Smart is designed to replace existing access readers like proximity or magnetic readers without additional wiring. Fingerprint template is stored in each user' s smart card and there is no need to store fingerprint data in a reader itself. This eliminates the burden of template management and networking readers.

2.3 General Specification

Operating range

Parameter	Symbol	Rate		Units
Supply voltage	V_{IN}	12		V
Operating temperature (TC,OP)	T_{OP}	0	70	°C
Operating temperature (FC)	T_{OP}	-20	70	°C
Humidity (non-condensing)			85	%

Smart card specifications

Parameter	Value
Antenna type	PCB loop antenna (60mm x 57mm)
Connection with transceiver	Permanent
Manufacturer / Model	Dual I, DE-KTFMI
Operating Frequency Range	13.56MHz
Duty cycle	100%

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3. DESCRIPTION OF TESTS

3.1 Restricted bands of operation

Fundamental emissions from the intentional radiators were not located within any of frequency bands described in section §15.205(a) listed below;

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.25
0.495 - 0.505**	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	Above 38.6
13.36 - 13.41			

Remark **: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

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3.2 Conducted Emission Measurement

Conducted emissions measurements were made in accordance with § 12.2 in ANSI C63.4-2001 "measurement of information technology equipment ". The measurement were performed over the frequency range of 0.15 MHz to 30 MHz using a 50Ω/50uH LISN as the input transducer to a spectrum analyzer or a field intensity meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10 kHz or for "quasi-peak" within a bandwidth of 9 kHz.

- Procedure of Test

The line-conducted emission test is conducted inside a shielded anechoic chamber room with 1m x 1.5m x 0.8m wooden table, which is placed 40cm away from the vertical wall, and 1.5m away from the side wall of the chamber room. Two LISN are bonded to the shielded room. The EUT is powered from the LISN and the support equipment is powered from another LISN. Powers to the LISN are filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ1.2cm. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and these supply lines will be connected to the EMCO LISN. All interconnecting cables more than 1m were shortened by non-inductive bundling (serpentines fashion) to a 1m length. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer or test receiver to determine the frequency producing the maximum emission from the EUT. The frequency producing the maximum level was reexamined using the detector function set to the CISPR Quasi-Peak and average mode by manual, after scanned by automatic Peak mode from 0.15 to 30 MHz. The bandwidth of the spectrum analyzer or test receiver was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was maximized by switching power lines, varying the mode of operation or resolution, clock or data exchange speed, if applicable, whichever determined the worst-case emission. Each emission reported was calibrated using self-calibrating mode.
Photographs of the worst-case emission can be seen in photographs of conducted emission test setup.

3.2.1 Limitation

(1) According to §15.207 Conducted limits

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the conducted limit is the following:

Frequency MHz	Quasi Peak dB uV	Average dB uV
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

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3.3 Radiated Emission Measurement

Radiated emission measurements were in accordance with § 12.2 in ANSI C63.4-2001 "Measurement of Information Technology Equipment ". The measurements were performed over the frequency range of 9KHz to 1 GHz using antenna as the input transducer to a Spectrum analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Quasi-peak" within a bandwidth of 120 kHz.

- Procedure of Test

Preliminary measurements were made at 3 meter using broadband antennas, and spectrum analyzer to determined the frequency producing the max. Emission in shielded room. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 9KHz to 1000 MHz using EMCO Magnetic loop antenna and SchwarzBeck Log-Bicon antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. Final measurements were made open site at 3-meters. The test equipment was placed on a wooden turntable. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR Quasi-peak mode and the bandwidth of the receiver was set to 200 Hz, 9 kHz, 120 kHz or 1MHz depending on the frequency of type of signal. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the max. Emission for the frequency and were placed on top of a 0.8-meter high nonmetallic 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the max. Emission. Each emission was maximized by: varying the mode of operation to the EUT and/or support equipment and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in Photographs of the worst-case emission test setup can be seen in Appendix B.

3.3.1 Radiated Emission Limits:

(1) According to §15.209 Radiated emission limits, general requirements

(a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 – 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241

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3.4 Carrier field strength measurement and field strength outside 13.110 ~ 14.010 MHz measurement and occupied bandwidth measurement

(1) According to §15.225 Operation within the band 13.110 – 14.010 MHz

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 micro volts/meter at 30 meters
(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters
(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz, the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters
(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209

(1) According to §15.215(c) Occupied bandwidth measurement

(a) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

3.5 Frequency tolerance of measurement

(1) According to §15.225 Operation within the band 13.110 – 14.010 MHz

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery-operated equipment, the equipment tests shall be performed using a new battery.

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4. TEST CONDITION

4.1 Test Configuration

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the following conditions and configurations were used.

4.2 EUT operation

Operating Mode	The worst operating condition
Stand-By Mode	X
Continue Transmitting	◎

◎: Worst case investigated during the test.

4.3 Support Equipment Used

Following peripheral devices and interface cables were connected during the measurement:

EUT – Access Reader

FCC ID	: N/A
Model Name	: BioEntry FC
Serial No.	: N/A
Manufacturer	: Suprema Inc.
Power Supply Type	: DC 12 V (From to DC power supply)
Power Cord	: Shielded, detachable: 1.5 m
Data Cable	: N/A

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5. TEST RESULTS

5.1 Summary of Test Results

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum emission of the EUT are reported.

Test Rule Parts	Measurement Required	Result
15.207	Conducted emissions measurement	**Passed**
15.209 15.225 (d)	Radiated emissions measurement Field strength outside 13.110 ~ 14.010 MHz measurement	**Passed**
15.225 (a, b, c) 15.215	13.56 MHz carrier field strength measurement Occupied Bandwidth measurement	**Passed**
15.225 (e)	Frequency Tolerance Measurement	**Passed**

The equipment is not modified anything, mechanical or circuits to improve EMI status during a measurement.
No EMI suppression device(s) was added and/or modified during testing.

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5. TEST RESULTS

5.2 Conducted Emissions Measurement

EUT	Access Reader / BioEntry FC (SN: N/A)
Limit apply to	FCC Part 15. 207
Test Date	July 12, 2005
Operating Condition	Continue Transmitting
Environment Condition	Humidity Level: 45 %RH, Temperature: 24 ℃
Result	Passed

The following table shows the highest levels of conducted emissions on both polarizations of hot and neutral line.
Detector mode: CISPR Quasi-Peak mode (6dB Bandwidth : 9 kHz)

Frequency [MHz]	Result [dBμV]		Phase [*H/**V]	Limit [dBμV]		Margin [dB]	
	Quasi-peak	Average		Quasi-peak	Average	Quasi-peak	Average
0.203	40.50		N	63.49	53.49	22.99	
1.057	43.70		N	56.00	46.00	12.30	
13.555	37.40		N	60.00	50.00	22.60	
27.131	42.70		H	60.00	50.00	17.30	

NOTES:

1. *** H : HOT Line , **N : Neutral Line**
2. **Margin value = Limit – Result**
3. **Measurement were performed at the AC power inlet in the frequency band of 150 kHz ~ 30 MHz according to the FCC Part 15 Class B**
4. **If the reading Quasi-Peak value is bellowed the average limit, do not test average mode.**

Test Engineer: K. K. Yoon

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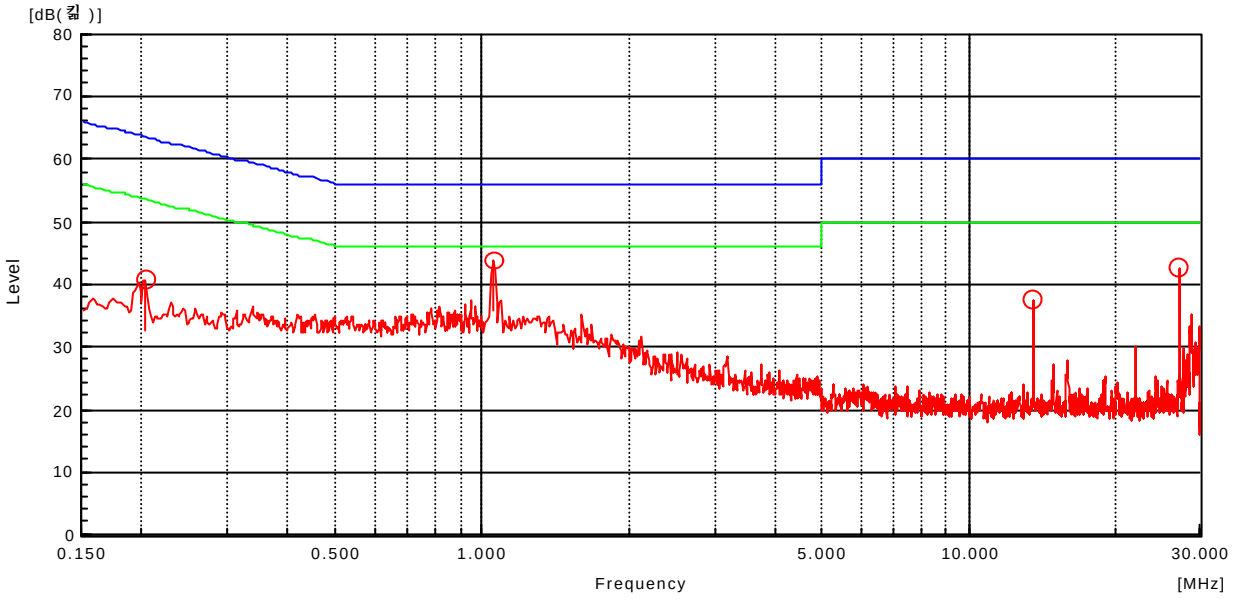
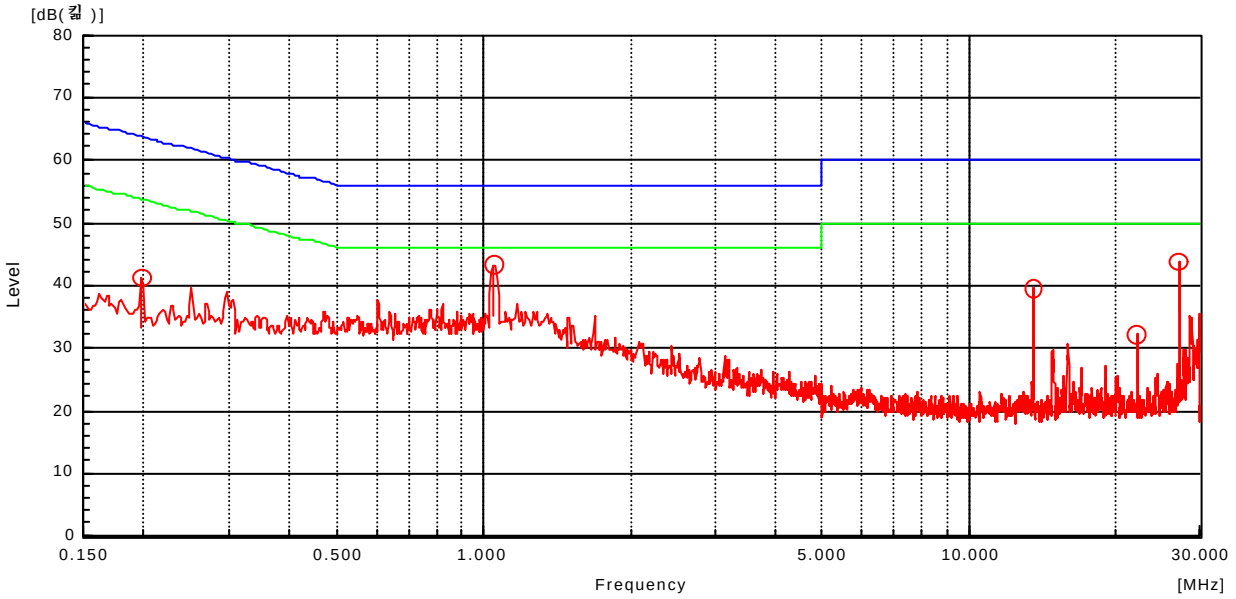
5. TEST RESULTS

Line: HOT Line



Line: Neutral Line



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5. TEST RESULTS

5.3 Radiated Emissions Measurement and Field strength outside 13.110 ~ 14.010 MHz measurement

EUT	Access Reader / BioEntry FC (SN: N/A)
Limit apply to	FCC Part 15.209 and 15.225 (d)
Test Date	July 13, 2005
Operating Condition	Continue Transmitting
Environment Condition	Humidity Level: 43 %RH, Temperature: 27 ℃
Result	Passed

Radiated Emission Test Data

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical. Detector mode: CISPR Quasi-Peak mode (6dB Bandwidth : 200 H, 9 k, 120 kHz)

Frequency [MHz]	Reading [dBμV]	Polarization [*H/**V]	Ant.Factor [dB/m]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
27.12	35.65	H	8.10	0.80	44.55	69.5	24.95
66.45	26.68	V	7.96	2.16	36.80	40.0	3.20
166.35	25.33	H	11.26	3.76	40.35	43.5	3.15
333.25	23.62	H	13.37	5.90	42.89	46.0	3.11
469.75	17.21	H	16.31	7.36	40.88	46.0	5.12
494.25	15.82	H	16.93	7.55	40.30	46.0	5.70
501.25	15.59	H	17.09	7.62	40.30	46.0	5.70
531.00	15.63	H	17.67	8.10	41.40	46.0	4.60

NOTES :*** H : Horizontal polarization , ** V : Vertical polarization**

1. **Result = Reading + Antenna factor + Cable loss**
2. **Margin value = Limit - Result**
3. **The measurement was performed for the frequency range 9 kHz ~ 1000 MHz according to the FCC Part 15. 209 and 15.225 (d)**

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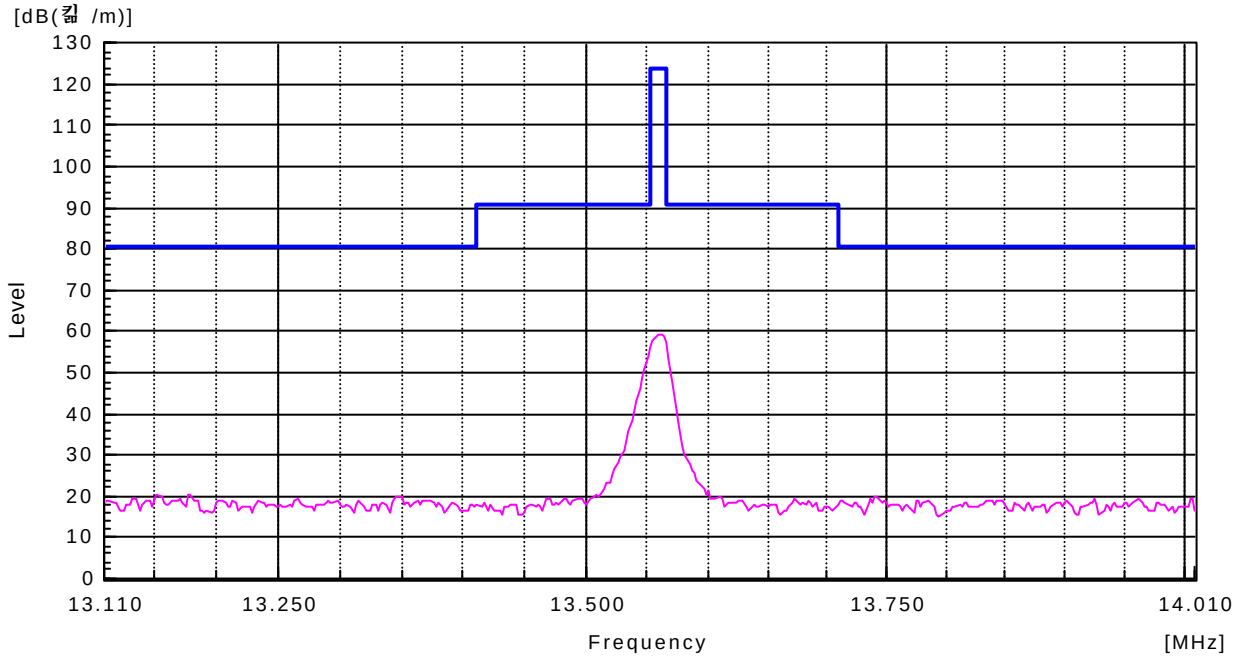
5. TEST RESULTS

5.4 13.56 MHz carrier field strength measurement and Occupied Bandwidth measurement

EUT	Access Reader / BioEntry FC (SN: N/A)
Limit apply to	FCC Part 15.225 (a, b, c) and 15.215 (c)
Test Date	July 13, 2005
Operating Condition	Continue Transmitting
Environment Condition	Humidity Level: 43 %RH, Temperature: 26 ℃
Result	Passed

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.
Detector mode: CISPR Quasi-Peak mode (6dB Bandwidth : 10 kHz, Video Bandwidth : 30 kHz)



Frequency [MHz]	Reading [dBμV]	Polarization [*H/**V]	Ant.Factor [dB/m]	Cable Loss [dB]	Result@3m[dBμV/m]	Limit@3m [dBμV/m]	Margin [dB]
13.56	48.90	H	10.00	0.20	59.10	124.0	64.90

NOTES :*** H : Horizontal polarization , ** V : Vertical polarization**

4. **Result = Reading + Antenna factor + Cable loss**
5. **Margin value = Limit - Emission level**

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5. TEST RESULTS

5.5 Frequency Tolerance Measurement

EUT	Access Reader / BioEntry FC (SN: N/A)
Limit apply to	FCC Part 15.225 (e)
Test Date	July 14, 2005
Operating Condition	Continue Transmitting
Environment Condition	Humidity Level: 43 %RH, Temperature: 22 ℃
Result	Passed

A. Frequency Stability Versus Environment Temperature (50℃~ -20℃)

Reference Frequency: 13.56 MHz					Limit: +0.01%			
Environment Temperature (℃)	Frequency Measure with Time Elapsed							
	0 Minutes		2 Minutes		5 Minutes		10 Minutes	
	MHz	%	MHz	%	MHz	%	MHz	%
50	13.55905	0.00701	13.55903	0.00715	13.55988	0.00884	13.55982	0.00133
40	13.55912	0.00649	13.55911	0.00656	13.55906	0.00693	13.55901	0.00730
30	13.55905	0.00701	13.55904	0.00708	13.55896	0.00767	13.55892	0.00796
20	13.55884	0.00855	13.55882	0.00870	13.55881	0.00878	13.55880	0.00885
10	13.55892	0.00796	13.55890	0.00811	13.55889	0.00819	13.55884	0.00855
0	13.55930	0.00516	13.55927	0.00538	13.55925	0.00553	13.55922	0.00575
-10	13.55937	0.00465	13.55935	0.00479	13.55931	0.00509	13.55928	0.00531
-20	13.55958	0.00310	13.55956	0.00324	13.55952	0.00354	13.55949	0.00376

B. Frequency Stability Versus Input Power (±15%):

Environment Temperature : 20 ℃

Reference Frequency: 13.56 MHz					Limit: +0.01%			
Power Supplied (Vdc)	Frequency Measure with Time Elapsed							
	0 Minutes		2 Minutes		5 Minutes		10 Minutes	
	MHz	%	MHz	%	MHz	%	MHz	%
10.2	13.55916	0.00619	13.55915	0.00627	13.55917	0.00612	13.55908	0.00678
12	13.55898	0.00752	13.55894	0.00782	13.55893	0.00789	13.55892	0.00796
13.8	13.55939	0.00450	13.55936	0.00472	13.55934	0.00487	13.55926	0.00546

Test Engineer: K. K. Yoon

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6. SAMPLE CALCULATION

Sample Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor.
The basic equation with a sample calculation is as follows:

FS = RA + AF + CF

where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor

dB(μV/m) = 20 $\log_{10}$ (μV /m) : Equation 1
dBμV = dBm + 107 : Equation 2

Example : @ 333.25 MHz

Class B Limit = 46.00 dBμV/m

Reading = 23.62 dBμV

Antenna Factor + Cable Loss = 13.37 + 5.90 = 19.27 dB/m

Total = 42.89 dBμV/m

Margin = 46.00 – 42.89 = 3.11 dB

= 3.11 dB below Limit

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7. List of test equipments used for measurements

Test Equipment		Model	Mfg.	Serial No.	Cal. Due Date
☒	Spectrum Analyzer	E7402A	H.P	US39110107	05-10-18
☒	Spectrum Analyzer	R3261A	Advantest	21720033	05-10-26
☒	Receiver	ESVS 10	R & S	835165/001	06-04-07
☒	EMI TEST Receiver	ESHS30	Rohde & Schwarz	0401901/002	05-10-18
☐	Preamplifier	HP 8347A	HP	2834A00544	06-04-07
☒	LISN	3825/2	EMCO	9006-1669	06-04-06
☐	LISN	3825/2	EMCO	9208-1995	06-04-07
☐	TriLog Antenna	VULB9160	Schwarz Beck	3082	06-07-27
☒	LogBicon	VULB9165	Schwarz Beck	2023	06-07-06
☒	Active Loop Ant.	6502	EMCO	2541	06-06-10
☐	Dipole Antenna	VHAP	Schwarz Beck	964	06-06-10
☐	Dipole Antenna	VHAP	Schwarz Beck	965	06-07-09
☐	Dipole Antenna	UHAP	Schwarz Beck	949	06-07-09
☐	Dipole Antenna	UHAP	Schwarz Beck	950	06-06-10
☐	Broad band Horn antenna	BBHA 9120D	Schwarz Beck	227	06-04-04
☒	Turn-Table	DETT-03	Daeil EMC	-	N/A
☒	Antenna Master	DEAM-03	Daeil EMC	-	N/A
☒	Chamber	DTEC01	DAETONG	-	N/A
☐	Thermo Hygrograph	3-3122	ISUZU	3312201	06-04-13
☐	Aneriod BaroMeter	-	Regulus	-	06-03-15
☒	Temperature Chamber	DS-TH-702(H)	Daesung	N/A	06-05-10

End of Test Report

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