CONFORMANCE TEST REPORT
FOR
FCC 47 CFR PART 15 SUBPART C

Report No. : JNDL-NU-17R-0001

Client:	**S-1 Corporation**
Product:	**Access Master Card Reader**
Model:	**CDR-10011**
Manufacture/supplier:	**S-1 Corporation**
Date test item received:	**2017/05/29**
Date test campaign completed:	**2017/06/30**
Date of issue:	**2017/07/05**

ATTESTATION STAEMENT

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment complies with the appropriate standards.

All **JNDL Laboratory. CO., LTD** instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements**.**

Total number of pages of this test report : 20 pages

Test engineer	Report reviewed by
	
Byoung-Su, Shim	**Gye-Woog, Lee**

APPLICABLE STANDARDS

STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

TEST ENVIRONMENT AND TEST SETUP

Test Facilities :	Test Firm Registration # : 748649 3m & 10m Open Site : 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 3m semi-Anechoic chamber : B 114~115, 810 Kwanyang-Dong, dongan-Gu, Anyang-Si, Kyunggi-Do, 431-060, Korea
Laboratory Test Conditions :	Open Site : Temperature 20 ºC, Humidity : 35 % 3m anechoic chamber : Temperature 24 ºC, Humidity : 46 %
Test Exercise :	The EUT was set in continuous transmit mode of operation unless stated otherwise.
Modification to the EUT :	No modification was made.
Supporting Accessories :	None

REVISION HISTORY

Revison	Date	Desriptions
0	2017.07.05	Original release

Table of Contents

1. General Remarks

The test results in this report apply to the particular Equipment Under Test (EUT) as declared in this report.
The test results presented in this report relate only to the item tested.

2. Test Site

2.1 Location

JNDL Laboratory. CO., LTD. .(Test Firm Registration # : 748649)
3m anechoic chamber : B 114~115, 810 Kwanyang-Dong, dongan-Gu, Anyang-Si, Kyunggi-Do, Korea
3m & 10m Open site : 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea

2.2 List of Test equipment used for tests

No.	Instrument	Model No.	Due to Calibration	Manufactor	Serial No.
☒	PSA SPECTRUM ANALYZER (3 Hz ~ 26.5 GHz)	E4440A	2018-01-08	Agilent Technologies	MY46185375
☐	SPECTRUM ANALYZER (20 Hz ~ 40.0 GHz)	FSP40	2017-09-01	Rohde & Schwarz	100308
☒	SIGNAL GENERATOR (10 MHz ~ 40 GHz)	MG3694B	2017-09-01	Anritsu Corp	062513
☒	POWER METER (DC ~ 67 GHz)	NRP2	2017-08-30	Rohde & Schwarz	100973
☒	POWER SENSOR (50 MHz ~ 40 GHz)	NRP-Z85	2017-08-30	Rohde & Schwarz	101121
☒	POWER SENSOR (9 KHz ~ 6 GHz)	NRP-Z92	2017-08-30	Rohde & Schwarz	100093
☐	EMI TEST RECEIVER (20 MHz ~ 1000 MHz)	ESVS30	2017-08-29	Rohde & Schwarz	828525/005
☒	EMI TEST RECEIVER (9 KHz ~ 2700 MHz)	ESCI7	2017-08-29	Rohde & Schwarz	100933
☒	LOOP ANTENNA (9 KHz ~ 30 MHz)	6502	2019-01-08	ETS-LINDGREN	00148046
☒	BILOG ANTENNA (30 MHz ~ 1000 MHz)	VULB 9168	2019-04-03	Schwarzbeck	9168-505
☒	BILOG ANTENNA (30 MHz ~ 1000 MHz)	VULB 9168	2018-11-25	Schwarzbeck	9168-506
☐	HORN ANTENNA (1 GHz ~ 18 GHz)	3117	2018-10-24	ETS-LINDGREN	00135889
☐	HORN ANTENNA (1 GHz ~ 18 GHz)	3117	2018-10-24	ETS-LINDGREN	00135878
☐	HORN ANTENNA (18 GHz ~ 40 GHz)	BBHA 9170	2019-04-25	Schwarzbeck	9170-499
☐	HORN ANTENNA (18 GHz ~ 40 GHz)	BBHA 9170	2019-04-25	Schwarzbeck	9170-500
☒	Low Noise Amplifier (100 MHz ~26.5 GHz)	TTA2650-HG	2018-05-16	TESTEK	1881352
☐	Low Noise Amplifier (18 GHz ~ 40 GHz)	AMF-6F-18004000-37-8P	2017-09-02	MITEQ	1814914

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

2.3 Test Date

Date of Application: 2017- 05 - 29
Date of Test: 2017- 06-26 ~ 2017 – 06-30

3. Product Information

3.1 Equipment Description

The Equipment Under Test(EUT) is the Access Master Card Reader (model : CDR-10011)

The model CDR-10011 is basic model that was tested.

3.2 General Specification

1. Overview

Access Master Card Reader is a machine controlling access management and making block change in Access Master Controller. Power is supplied by auxiliary Access Master Power Supply or Access Master Controller.

2. Standard Specifications

2.1 Outlines

1)Form : Used in indoor installation
2)Size : (W)100 × (H)172 × (D)24 [mm]
3)Weight : about 320g

2.2 Electrical Specifications

1)Input Voltage : DC 12V, 500mA
2)Current consumption : Power index 1.3 (less than DC 12V 500mA)

2.3 RF Specifications

This proximity cardreader shall produce an energizing RF field which couples to the card to transfer power and which shall be modulated for communication and follows ISO14443 standard.
1)Operating frequency : 13.56MHz
2)Channel : 1 ch
3)Modulation type : ASK

4. Description of Tests

The tests documented in this report were performed in accordance with ANSI C63.4-2014 and ANSI C63.10-2013 and FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

4.1 Radiated Emission Measurement

Radiated emission measurements were made in accordance with § 13 in ANSI C63.4-2014 and ANSI C63.10-2013 "Measurement of Intentional radiators" The measurements were performed over the frequency range of 30 MHz to 40 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 "Peak, Quasi-peak, Average" within a bandwidth of 120 kHz and above 1 GHz is 1 MHz.

Preliminary measurements were made at 3 m using broadband antennas, and spectrum analyzer to determine the frequency producing the maximum 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 30 MHz to 1 000 MHz using Log-Bicon antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. Final measurements were made open site or SVSWR chamber at 3 m. The test equipment was placed on a styrofoam table. 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 EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8 m high nonmetallic 1.0 m x 1.5 m 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 m to 4 m and stopped at the azimuth or height producing the maximum emission.

Varying the mode of operating frequencies of the EUT maximized each emission. The system was tested in all the three orthogonal planes and changing the polarity of the antenna. The worst-case emissions are recorded in the data tables. If necessary, the radiated emission measurement could be performed at a closer distance to ensure higher accuracy and the results were extrapolated to the specified distance using an inverse linear distance extrapolation factor (20 dB/decade) as per section 15.31(f).

Photographs of the worst-case emission can be seen in Photographs of the worst-case emission test setup can be seen in Appendix .

4.1.1 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 [μV/m]	Measurement Distance [m]
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 MHz - 72 MHz, 76 MHz - 88 MHz, 174 MHz - 216 MHz or 470 MHz - 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241

4.2 Carrier field strength and field strength outside 13.110 MHz - 14.010 MHz and occupied bandwidth

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

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

Frequency [MHz]	Field Strength Limit [μV/m] @ 30 m	Field Strength Limit [dB(μV/m)] @ 30 m	Field Strength Limit [dB(μV/m)] @ 3 m
13.110 - 13.410	106	40.5	80.5
13.410 - 13.553	334	50.5	90.5
13.553 - 13.567	15 848	84.0	124.0
13.567 - 13.710	334	50.5	90.5
13.710 - 14.010	106	40.5	80.5

(2) According to §15.215(c) Occupied bandwidth

(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.

4.3 Frequency tolerance

(1) According to §15.225 Operation within the band 13.110 MHz - 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 ℃ to +50 ℃ 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 ℃. For battery-operated equipment, the equipment tests shall be performed using a new battery.

4.4 Conducted Emission Measurement

Conducted emissions measurements were made in accordance with section § 13 in ANSI C63.4-2014 and ANSI C63.10-2009 "measurement of intentional radiators" The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50 μH LISN as the input transducer to a Spectrum Analyzer or a Test Receiver. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 9 kHz or for "quasi-peak" within a bandwidth of 9 kHz.

The line-conducted emission test is conducted inside a shielded anechoic chamber room with 1 m x 1.5 m x 0.8 m wooden table which is placed 0.4 m away from the vertical wall and 1.5 m 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 the other LISN. Power to the LISNs are filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ 1.2 cm. 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 LISN. Non-inductive bundling to a 1 m length shortened all interconnecting cables more than 1 m. 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 EMI Test Receiver to determine the frequency producing the maximum emission from the EUT. The frequency producing the maximum level was reexamined using to set Quasi-Peak mode by manual, after scanned by automatic Peak mode from 0.15 MHz to 30 MHz. The bandwidth of the spectrum analyzer was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission.

Photographs of the worst-case emission can be seen in Photographs of the worst-case emission test setup can be seen in Appendix .

4.5 FCC Part 15.205 Restricted Bands of Operations

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 - 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 - 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 - 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 - 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 - 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 - 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 - 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 - 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 - 2 500	17.7 - 21.4
8.376 25 - 8.386 75	156.7 - 156.9	2 690 - 2 900	22.01 - 23.12
8.414 25 - 8.414 75	162.012 5 - 167.17	3 260 - 3 267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3 332 - 3 339	31.2 - 31.8
12.519 75 - 12.520 25	240 - 285	3 345.8 - 3 358	36.43 - 36.5
12.576 75 - 12.577 25	322 - 335.4	3 600 - 4 400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490 MHz - 0.510 MHz.
[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4.6 Antenna connection requirement

(1) According to §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

5. TEST CONDITION

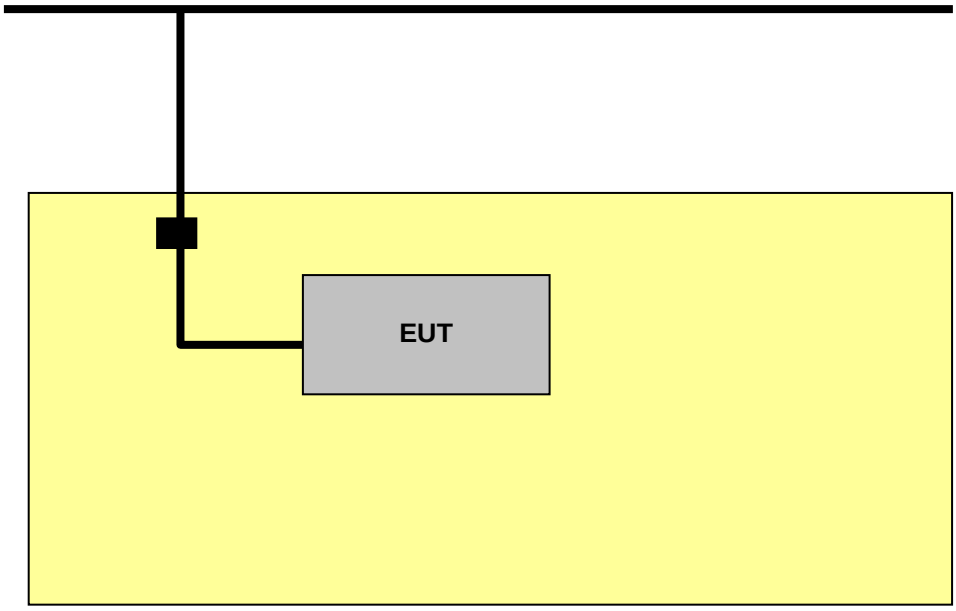
5.1 Test Configuration

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.

5.2 Description of Test modes

Automated medication management system that has the control software.

5.3 The setup drawing(s)



: Signal line

: Power line

: DC Power Supply

6. TEST RESULTS

6.1 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.

47 CFR Part 15, Subpart C	Measurement Required	Result
15.207(a),(d)	Conducted emissions	**N/A**
15.209/15.225(d)	Radiated emissions Field strength outside 13.110 MHz – 14.010 MHz	**Pass**
15.225(a)(b)(c)	13.56 MHz carrier field strength within the bands	**Pass**
15.215	Occupied Bandwidth	**Pass**
15.225(e)	Frequency Tolerance	**Pass**
15.203	Antenna connection requirement	Integral antenna which is permanently attached and cannot be replaced.

The data collected shows that the **S-1 Corporation /** Access Master Card Reader **/ CDR-10011** complied with technical requirements of above rules part 15.207, 209 and 15.247 Limits.

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.

6.2 Conducted Emissions Measurement

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission [MHz]	Conducted limit [dB(μV)]	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

Test Results : N/A

6.3 Spurious Emissions

Limit

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 [μV/m]	Measurement Distance [m]
0.009 - 0.490	2 400/F(kHz)	300
0.490 - 1.705	24 000/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

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

Test Results

- Refer to see the measured plot in next page.

Radiated Emissions Test data

- 9 kHz to 30 MHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.
Detector mode: CISPR Quasi-Peak mode (100 Hz, 9 kHz)

Frequency [MHz]	Reading [dB(μV)]	Polarization (*H/**V)	Ant. Factor [dB/m]	Cable Loss [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
	Emission attenuated more than 20 dB below the limit are not reported.						

Result: All emissions below noise floor of 20 dB(μV/m).

NOTES:

1. * H : Horizontal polarization , ** V : Vertical polarization
2. Result = Reading + Antenna factor + Cable loss
3. Margin = Limit - Result
4. The measurement was performed for the frequency range 9 kHz to 30 MHz according to FCC Part 15.209.

- Below 1 GHz (30 MHz to 1 GHz)

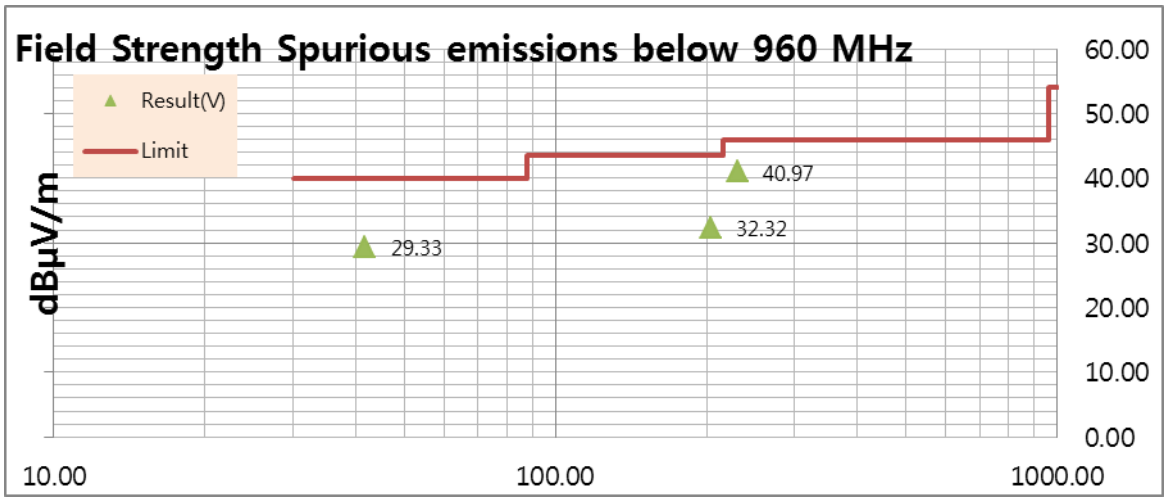
The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.
Detector mode: CISPR Quasi-Peak mode (6 dB Bandwidth: 120 kHz)

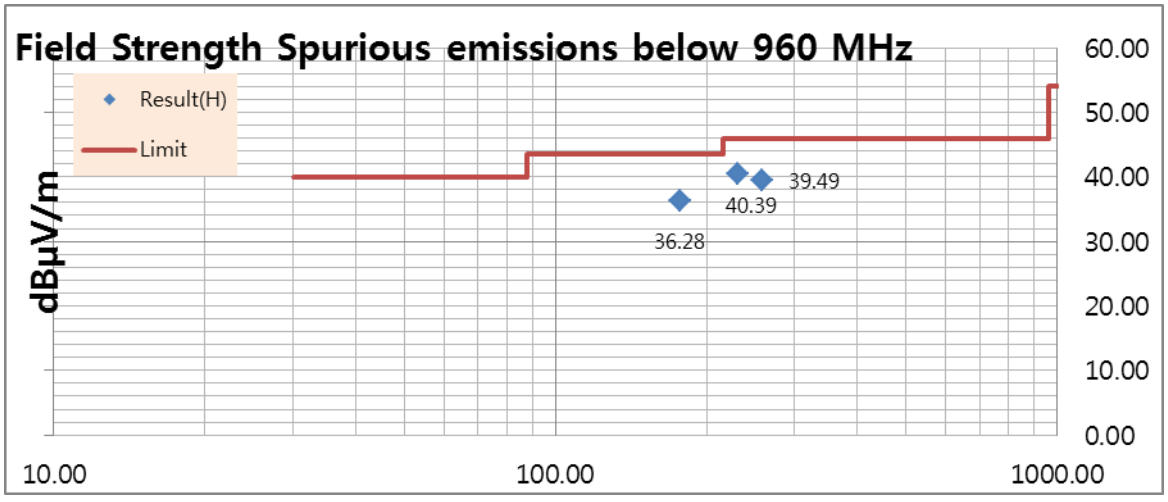
- Adaptor mode

Emission Frequency [MHz]	Measure Value [dBµV]	Antenna Pola V/H	Antenna Factor [dB/m]	Cable Loss [dB]	Field Strength dBµV/m @ 3m	Limit dBµV/m @ 3m	Margin [dB]
41.71	16.19	V	12.57	0.57	29.33	40.0	10.67
203.52	20.06	V	11.06	1.20	32.32	43.5	11.18
230.91	28.16	V	11.54	1.27	40.97	46.0	5.03
176.89	23.30	H	11.87	1.11	36.28	43.5	7.22
230.91	27.58	H	11.54	1.27	40.39	46.0	5.61
258.33	25.96	H	12.19	1.34	39.49	46.0	6.51

NOTES:

1. * H : Horizontal polarization , ** V : Vertical polarization
2. Result = Reading + Antenna factor + Cable loss
3. Margin value = Limit - Result
4. The measurement was performed for the frequency range above 30 MHz according to FCC Part 15.209.





6.4 13.56 MHz carrier field strength within bands

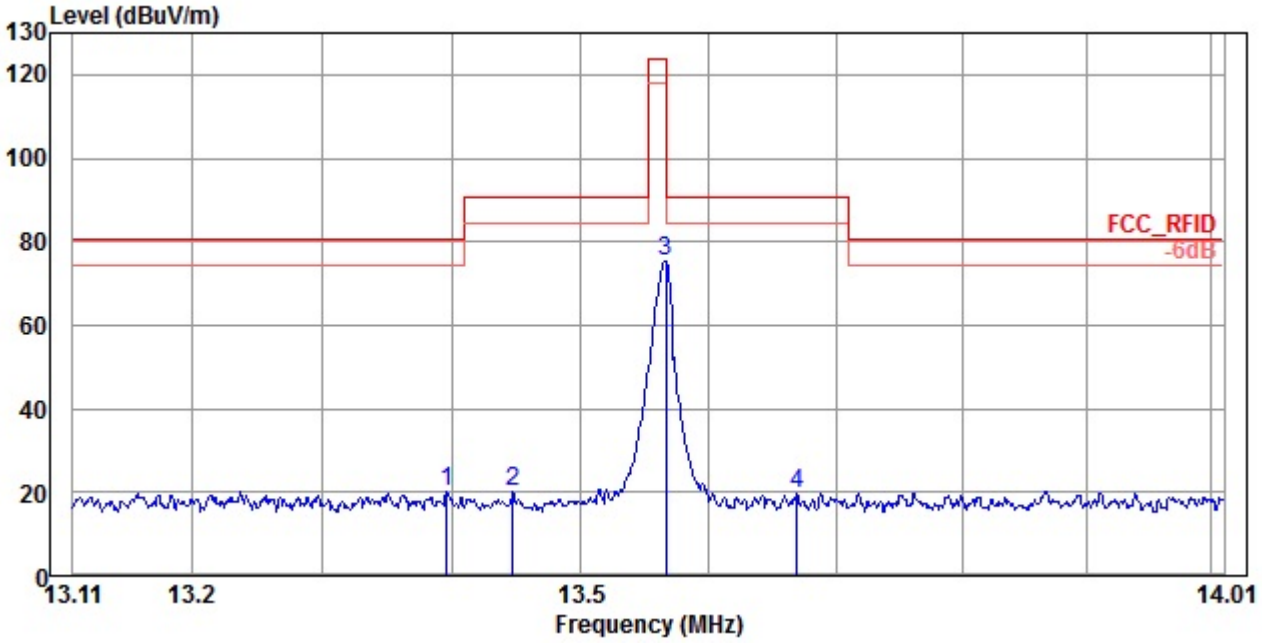
Radiated Emission Test Data

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

Frequency [MHz]	Reading [dB(μV) @ 3 m]	Polarization (*H/**V)	Ant. Factor [dB/m]	Cable Loss [dB]	Result [dB(μV/m) @ 3 m]	Limit [dB(μV/m) @ 3 m]	Margin [dB]
13.56	65.42	H	9.55	0.39	75.36	124.00	48.64

NOTES:

1. *** H : Horizontal polarization , ** V : Vertical polarization**
2. **Result = Reading + Antenna factor + Cable loss**
3. **Margin value = Limit - Result**
4. **The measurement was performed for the frequency range 13.56 MHz according to FCC Part 15.225(a)(b)(c)**



6.5 Occupied Bandwidth

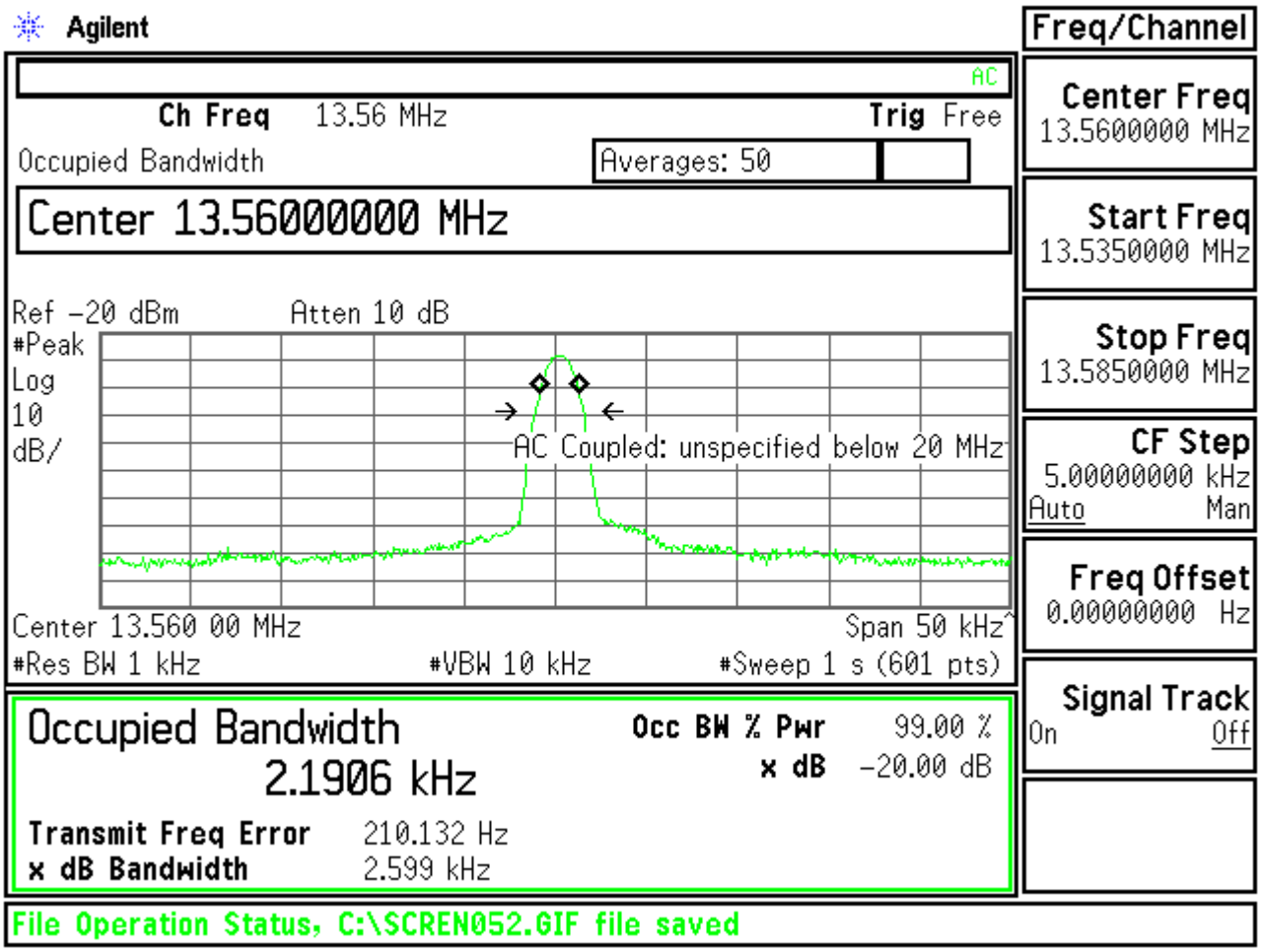
6.5.1 Occupied Bandwidth

Frequency [MHz]	20 dB Bandwidth [kHz]	Remark
13.56	2.19	-

NOTES:

1. Measure frequency separation of relevant channel using spectrum analyzer.

Plots of 20 dB Bandwidth



6.6 Frequency Tolerance

Frequency Tolerance Test Data

The Frequency Tolerance of the carrier signal shall be maintained within ± 0.01 % of operating frequency over a temperature variation of -20 ℃ to +50 ℃ 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 ℃.

- Operating frequency: 13.56 MHz
- Limit: ± 1 356 Hz
- Within the band: 13.558 644 MHz - 13.561 356 MHz

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

Reference Frequency: 13.56 MHz			Limit: ± 1 356 Hz					
Environment Temperature [℃]	Frequency Measure with Time Elapsed							
	Start up		2 Minute		5 Minute		10 Minute	
	MHz	Deviation	MHz	Deviation	MHz	Deviation	MHz	Deviation
50	13.560 183	0.000 183	13.560 190	0.000 190	13.560 173	0.000 173	13.560 177	0.000 177
40	13.560 210	0.000 210	13.560 220	0.000 220	13.560 220	0.000 220	13.560 213	0.000 213
30	13.560 247	0.000 247	13.560 260	0.000 260	13.560 237	0.000 237	13.560 243	0.000 243
20	13.560 283	0.000 283	13.560 290	0.000 290	13.560 270	0.000 270	13.560 267	0.000 267
10	13.560 313	0.000 313	13.560 320	0.000 320	13.560 303	0.000 303	13.560 313	0.000 313
0	13.560 330	0.000 330	13.560 333	0.000 333	13.560 323	0.000 323	13.560 330	0.000 330
-10	13.560 337	0.000 337	13.560 337	0.000 337	13.560 337	0.000 337	13.560 337	0.000 337
-20	13.560 340	0.000 340	13.560 337	0.000 337	13.560 337	0.000 337	13.560 333	0.000 333

Frequency Stability Versus Input Power (± 15 %): Environment Temperature: 25 ℃

Reference Frequency: 13.56 MHz			Limit: ± 1 356 Hz					
Power Supplied [Vdc]	Frequency Measure with Time Elapsed							
	Start up		2 Minute		5 Minute		10 Minute	
	MHz	Deviation	MHz	Deviation	MHz	Deviation	MHz	Deviation
10.2	13.560 220	0.000 220	13.560 210	0.000 210	13.560 207	0.000 207	13.560 203	0.000 203
12.0	13.560 217	0.000 217	13.560 213	0.000 213	13.560 210	0.000 210	13.560 207	0.000 207
13.8	13.560 260	0.000 260	13.560 240	0.000 240	13.560 230	0.000 230	13.560 217	0.000 217

7. 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 - PA

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
PA* = Preamplifier Factor

* PA is only be used for the measuring frequency above 1 GHz.

$dB(\mu V) = 20 \log_{10} (\mu V)$: Equation
$dB(\mu V) = dBm + 107$

Example : @ 230.91 MHz

Class B Limit	= 46.00 dB(μV/m)	
Reading	= 27.58 dB(μV)	
Antenna Factor + Cable Loss		= 11.54 + 1.27 = 12.81 dB(μV/m)
Total		= 40.39 dB(μV/m)
Margin	= 46.00-40.39 = 5.61 dB	
	= 5.61 dB below Limit	