



SK TECH CO., LTD.

Page 1 of 17

## TEST REPORT

Test Report No.:	SKTRFC-121226-028		
Applicant:	DUALi Inc.		
Applicant Address:	1-309 Innoplex, 552 Woncheon-dong, Youngtong-gu, Suwon, Gyeonggi-do South Korea		
Manufacturer:	DUALi Inc.		
Manufacturer Address:	1-309 Innoplex, 552 Woncheon-dong, Youngtong-gu, Suwon, Gyeonggi-do South Korea		
Equipment Under Test:	SMART CARD READER		
FCC ID:	SWUDE-930	Model No.:	DE-930
Brand/Trade Name:	DUALi Inc.		
Receipt No.:	SKTEU12-0718	Date of receipt:	June 5, 2012
Date of Issue:	December 26, 2012		
Location of Testing:	SK TECH CO., LTD. #820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea		
Test Procedure:	ANSI C63.4-2003		
Test Specification:	47CFR, Part 15 Rules		
Equipment Class:	DXT - Part 15 Low Power Transceiver, Rx Verified		
Test Result:	The above-mentioned device has been tested and passed.		
Tested & Reported by: Jungtae Kim	Approved by: Jongsoo Yoon		
	December 26, 2012		
Signature	Date	Signature	Date
Other Aspects:	-		
Abbreviations:	· OK, Pass = passed · Fail = failed · N/A = not applicable		



- This test report is not permitted to copy partly and entirely without our permission.
- This test result is dependent on only equipment to be used.
- This test result is based on a single evaluation of submitted samples of the above mentioned.



## &gt;&gt; CONTENTS &lt;&lt;

<b>1. GENERAL</b>	3
<b>2. TEST SITE</b>	3
2.1 Location	3
2.2 List of Test and Measurement Instruments	4
2.3 Test Date	4
2.4 Test Environment	4
<b>3. DESCRIPTION OF The EQUIPMENT UNDER TEST</b>	5
3.1 Rating and Physical Characteristics	5
3.2 Submitted Documents	5
3.3 Equipment Modifications	5
<b>4. MEASUREMENT CONDITIONS</b>	6
4.1 Description of test configuration	6
4.2 List of Peripherals	6
4.3 Type of Used Cables	6
4.4 Uncertainty	6
<b>5. TEST AND MEASUREMENTS</b>	7
<b>5.1 ANTENNA REQUIREMENT</b>	7
5.1.1 Regulation	7
5.1.2 Result	7
<b>5.2 RADIATED EMISSIONS</b>	8
5.2.1 Regulation	8
5.2.2 Measurement Procedure	9
5.2.3 Calculation of the filed strength limits below 30 MHz	10
5.2.4 Test Results	11
Table 1: Field strength below 30 MHz	11
Table 2: Field strength above 30 MHz	11
Figure 1: Plot of the Band edge	12
Figure 2: Plot of the 20 dB bandwidth	12
<b>5.3 FREQUENCY TOLERANCE OF CARRIER SIGNAL</b>	13
5.3.1 Regulation	13
5.3.2 Measurement Procedure	13
5.3.3 Test Results	14
Table 3: Frequency Tolerance	14
<b>5.4 AC POWER LINE CONDUCTED EMISSIONS</b>	15
5.4.1 Regulation	15
5.4.2 Measurement Procedure	15
5.4.3 Test Results	16
Table 4: Measured Values of the Conducted Emissions	16
Figure 4: Plot of the Conducted Emissions	17

**SK TECH CO., LTD.***Page 3 of 17*

## 1. GENERAL

These tests were performed using the test procedure outlined in ANSI C63.4-2003 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.225. The EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards.

We attest to the accuracy of data. All measurements reported herein were performed by SK TECH CO., LTD. and were made under Chief Engineer's supervision.

We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

## 2. TEST SITE

SK TECH CO., LTD.

### 2.1 Location

#820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea

(FCC Registered Test Site Number: 938639)

(OPEN AREA TEST SITE INDUSTRY CANADA NUMBER: IC 5429A-1)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.

This laboratory is recognized as a Conformity Assessment Body (CAB) for CAB's Designation Number: KR0007 by FCC.



## 2.2 List of Test and Measurement Instruments

No.	Description	Manufacturer	Model No.	Serial No.	Calibrated until	Used
1	Spectrum Analyzer	Agilent	E4405B	US40520856	2013.03.07	
2	Spectrum Analyzer	Agilent	E4440A	MY46186322	2013.03.08	<input checked="" type="checkbox"/>
3	EMC Spectrum Analyzer	Agilent	E7405A	US40240203	2013.07.09	
4	EMI Test Receiver	Rohde&Schwarz	ESPI7	101206	2013.07.10	<input checked="" type="checkbox"/>
5	EMI Test Receiver	Rohde&Schwarz	ESIB40	100277	2013.03.08	
6	EMI Test Receiver	Rohde&Schwarz	ESHS10	835871/002	2013.09.18	<input checked="" type="checkbox"/>
7	Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	836679/018	2013.07.09	<input checked="" type="checkbox"/>
8	Pre-amplifier	HP	8447F	3113A05153	2013.07.10	<input checked="" type="checkbox"/>
9	Pre-amplifier	MITEQ	AFS44	1116321	2012.12.22	
10	Pre-amplifier	MITEQ	AFS44	1116322	2013.07.10	
11	Power Meter	Agilent	E4417A	MY45100426	2013.07.10	
12	Power Meter	Agilent	E4418B	US39402176	2013.07.10	
13	Power Sensor	Agilent	E9327A	MY44420696	2013.07.10	
14	Power Sensor	Agilent	8482A	MY41094094	2013.07.10	
15	Power Sensor	Agilent	8485A	3318A13916	2013.07.10	
16	Attenuator (10dB)	HP	8491B	38067	2013.07.09	
17	Attenuator (20dB)	Weinschel	44	AH6967	2013.07.09	
18	High Pass Filter	Wainwright	WHKX3.0/18G	8	2013.07.09	
19	VHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	VHAP	1014 / 1015	2013.10.04	
20	UHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	UHAP	989 / 990	2013.10.04	
21	Loop Antenna	Schwarzbeck	HFH2-Z2	863048/019	2012.12.22	<input checked="" type="checkbox"/>
22	TRILOG Broadband Antenna	Schwarzbeck	VULB9168	189	2013.05.31	<input checked="" type="checkbox"/>
23	Horn Antenna	AH Systems	SAS-200/571	304	N/A	
24	Horn Antenna	EMCO	3115	00040723	2013.05.31	
25	Horn Antenna	EMCO	3115	00056768	2013.09.06	
26	Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170318	2013.09.28	
27	Vector Signal Generator	Agilent	E4438C	MY42080359	2013.07.09	
28	PSG analog signal generator	Agilent	E8257D-520	MY45141255	2013.07.10	
29	DC Power Supply	HP	6633A	3325A04972	2013.07.10	
30	DC Power Supply	HP	6622A	3348A03223	2013.07.10	
31	Temperature/Humidity Chamber	All Three	ATM-50M	20030425	2013.03.07	<input checked="" type="checkbox"/>
32	Hygro/Thermo Graph	SATO	PC-5000TRH-II	-	2013.07.18	<input checked="" type="checkbox"/>

## 2.3 Test Date

Date of Test: December 3, 2012 ~ December 13, 2012

## 2.4 Test Environment

See each test item's description.



### **3. DESCRIPTION OF THE EQUIPMENT UNDER TEST**

The product specification described herein was obtained from the product data sheet or user's manual.

#### **3.1 Rating and Physical Characteristics**

Power source	DC 12 V(from AC/DC adapter)
Local Oscillator or X-Tal	X-Tal: 27.12 MHz
Tx Frequency	13.56 MHz
Antenna Type	Internal PCB antenna (70 × 65 mm, 1-turn)
Type of Modulation	ASK

\*\*: The equipment authorization for FCC Part 15B as a digital device was made under DoC process with a separate test report number.

#### **3.2 Equipment Modifications**

Three ferrite cores were added to comply with the requirements.

#### **3.3 Submitted Documents**

Block diagram

Schematic diagram

Part List

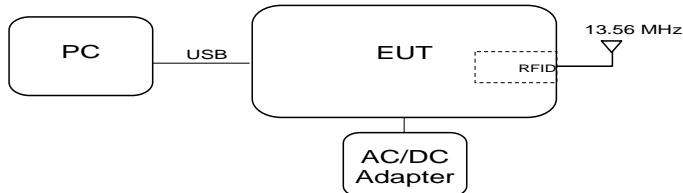
User manual



## 4. MEASUREMENT CONDITIONS

### 4.1 Description of test configuration

The EUT was tested in the continuous transmitting mode provided by the applicant.



[System Block Diagram of Test Configuration]

Test software used (for Card RFID) DualCard.exe, Ver2.8

### 4.2 List of Peripherals

Equipment Type	Manufacturer	Model	S/N
PC	Samsung Electronics Co., Ltd.	DM-V75	BY6497EQ500013J
LCD Monitor	Qisda(Suzhou) Co., Ltd.	ST-2210b	CN-0T503R-74261-986-1NKL
Mouse (USB)	Logitech Inc	M-UAE96	-
Keyboard (USB)	CHICONY ELECTRONICS CO., LTD.	KU-0225	0004843
RFID Card(A/B)	-	-	-
AC/DC Adapter(EUT)	Ningbo ISO Electronics Co.,Ltd.	PAA040F	D09-D0711000441

### 4.3 Type of Used Cables

#	START		END		CABLE	
	NAME	I/O PORT	NAME	I/O PORT	LENGTH(m)	SHIELDED
1	EUT	USB	PC	USB	0.5	NO (w/ ferrite cores)
2	EUT	DC Input	AC/DC adapter	DC output	0.9	NO (w/ ferrite core)
3	PC	RGB	LCD Monitor	RGB	1.4	YES
4	PC	USB	Keyboard	USB	2.1	YES
5	PC	USB	Mouse	USB	1.8	YES
6	PC	AC Input	AC Mains	AC Mains	1.8	NO
7	LCD Monitor	AC Input	AC Mains	AC Mains	1.8	NO
8	AC/DC adapter	AC Input	AC Mains	AC Mains	1.8	NO

### 4.4 Uncertainty

Measurement Item	Combined Standard Uncertainty $U_c$	Expanded Uncertainty $U = k \times U_c (k = 2)$
Radiated disturbance	$\pm 2.30$ dB	$\pm 4.60$ dB
Conducted disturbance	$\pm 1.96$ dB	$\pm 3.92$ dB



## 5. TEST AND MEASUREMENTS

### Summary of Test Results

Requirement	FCC, 47CFR15	Report Section	Test Result
Antenna Requirement	15.203	5.1	PASS
Radiated Emissions Field Strength within the band 13.553-13.567 MHz	15.225(a)	5.2	PASS
Field Strength within the bands 13.410-13.553 MHz and 13.567-13.710 MHz 13.110-13.410 MHz and 13.710-14.010 MHz	15.225(b) & (c)	5.2	PASS
Radiated Harmonics and Spurious Emissions Outside of the 13.110 – 14.010 MHz	15.225(d) 15.209(a)	5.2	PASS
Frequency Tolerance of Carrier Signal	15.225(e)	5.3	PASS
AC Power Line Conducted Emissions	15.207(a)	5.4	PASS

### 5.1 ANTENNA REQUIREMENT

#### 5.1.1 Regulation

##### FCC 47CFR15 – 15.203

FCC section 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 Part 15C. The manufacturer may design the unit so that the user can replace a broken antenna, 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.

#### 5.1.2 Result:

**PASS**

The EUT has an integral PCB loop antenna, and meets the requirements of this section.



## 5.2 RADIATED EMISSIONS

### 5.2.1 Regulation

#### FCC 47CFR15 – 15.225

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/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.

Frequency (MHz)	Field strength limit ( $\mu$ V/m) @ 30 m	Field strength limit (dB $\mu$ V/m) @ 30 m	Field strength limit (dB $\mu$ V/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

#### FCC 47CFR15 – 15.209

- (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:

Frequency (MHz)	Field strength limit ( $\mu$ V/m)	Field strength limit (dB $\mu$ V/m)	Measurement Distance (m)
0.009 – 0.490	$2400/F$ (kHz) = 266.7 – 4.9	48.5 – 13.8	300
0.490 – 1.705	$24000/F$ (kHz) = 49.0 – 14.1	33.8 – 23.0	30
1.705 – 30.0	30	29.5	30
30 – 88	100	40.0	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

\* The emission limits shown in the above table are based on measurement instrumentation employing a CISPR quasi-peak detector. For the frequency bands 9 – 90 kHz, 110 – 490 kHz and above 1000 MHz, the radiated emission limits are based on measurements employing an average detector.

\* The lower limit shall apply at the transition frequencies.



## 5.2.2 Measurement Procedure

### Radiated Emissions Test, 9 kHz to 30 MHz (Magnetic Field Test)

1. The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions at a distance of 1 meter or 3 meters according to Section 15.31(f)(2).
2. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table.
3. Emissions from the EUT are maximized by adjusting the orientation of the Loop antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions if applicable.
4. To obtain the final measurement data, each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

### Radiated Emissions Test, above 30 MHz

1. The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions in an anechoic chamber at a distance of 3 meters.
2. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360°.
3. The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 30 to 1000 MHz using the TRILOG broadband antenna
4. To obtain the final measurement data, the EUT was arranged on a turntable situated on a 4 × 4 meter at the Open Area Test Site. The EUT was tested at a distance 3 meters.
5. Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.
6. The EUT is situated in three orthogonal planes (if appropriate)
7. The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT.

**5.2.3 Calculation of the field strength limits below 30 MHz**

1. No special calculation for obtaining the field strength in dB $\mu$ V/m is necessary, because the EMI receiver and the active loop antenna operate as a system, where the reading gives directly the field strength result (dB $\mu$ V/m). The antenna factors and cable losses are already taken into consideration.
2. For test distance other than what is specified, but fulfilling the requirements of section 15.31 (f) (2) the field strength is calculated by adding additionally an extrapolation factor of 40dB/decade (inverse linear distance for field strength measurements).
3. All following emission measurements were performed using the test receiver's average, peak, and quasi-peak detector function with specified bandwidth.
4. The basic equation is as follows;

$$FS = RA + DF$$

Where

FS = Field strength in dB $\mu$ V/m

RA = Receiver Amplitude in dB $\mu$ V/m

DF = Distance Extrapolation Factor in dB

Where  $DF = 40\log(D_{TEST} / D_{SPEC})$  where  $D_{TEST}$  = Test Distance and  $D_{SPEC}$  = Specified Distance

$DF = 40\log(3m/300m) = -80\text{dB}$ , for frequency band: 0.009 to 0.490MHz

$DF = 40\log(3m/30m) = -40\text{dB}$ , for frequency band: 0.490 to 30MHz



## 5.2.4 Test Results:

PASS

Table 1: Field strength below 30 MHz

Frequency [MHz]	RBW [kHz]	Reading [dB( $\mu$ V/m)]	Cable Loss [dB]	Actual [dB( $\mu$ V/m)]	Limit (at 3m) [dB( $\mu$ V/m)]	Margin [dB]
<b>Emissions Quasi-peak DATA under 15.225(a), (b)&amp;(c)</b>						
13.560 0	9	65.01	0.3	65.31	124.0	58.69
13.423 0	9	---	0.3	---	90.5	---
13.474 9	9	---	0.3	---	90.5	---
13.629 7	9	---	0.3	---	90.5	---
13.691 6	9	---	0.3	---	90.5	---
<b>Emissions Quasi-peak DATA under 15.225(d), 15.209</b>						
25.65	9	---	0.3	---	69.5	---
27.12	9	---	0.3	---	69.5	---

**Actual (dB $\mu$ V/m) = Reading + Cable Loss****Margin (dB) = Limit – Actual**

Remark: "—" means the emission level was too low to be measured or in the noise floor.

Table 2: Measured values of the Field strength (above 30 MHz)

Frequency [MHz]	RBW [kHz]	POL [V/H]	ANT [m]	Reading [dB $\mu$ V]	AMP [dB]	AF [dB/m]	CL [dB]	Actual [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]
220.41	120	H	1.00	52.04	26.93	10.95	1.83	37.89	46.00	8.11
220.40	120	V	1.00	54.89	26.93	10.95	1.83	40.74	46.00	5.26
298.28	120	H	1.00	53.18	26.79	13.78	2.13	42.30	46.00	3.70 **
298.24	120	V	1.00	51.67	26.79	13.78	2.13	40.79	46.00	5.21

**Margin (dB) = Limit – Actual****[Actual = Reading + AF + CL]**

1. H = Horizontal, V = Vertical Polarization

2. AF/CL = Antenna Factor and Cable Loss

NOTE: 1. All emissions not reported were more than 20 dB below the specified limit or in the noise floor.

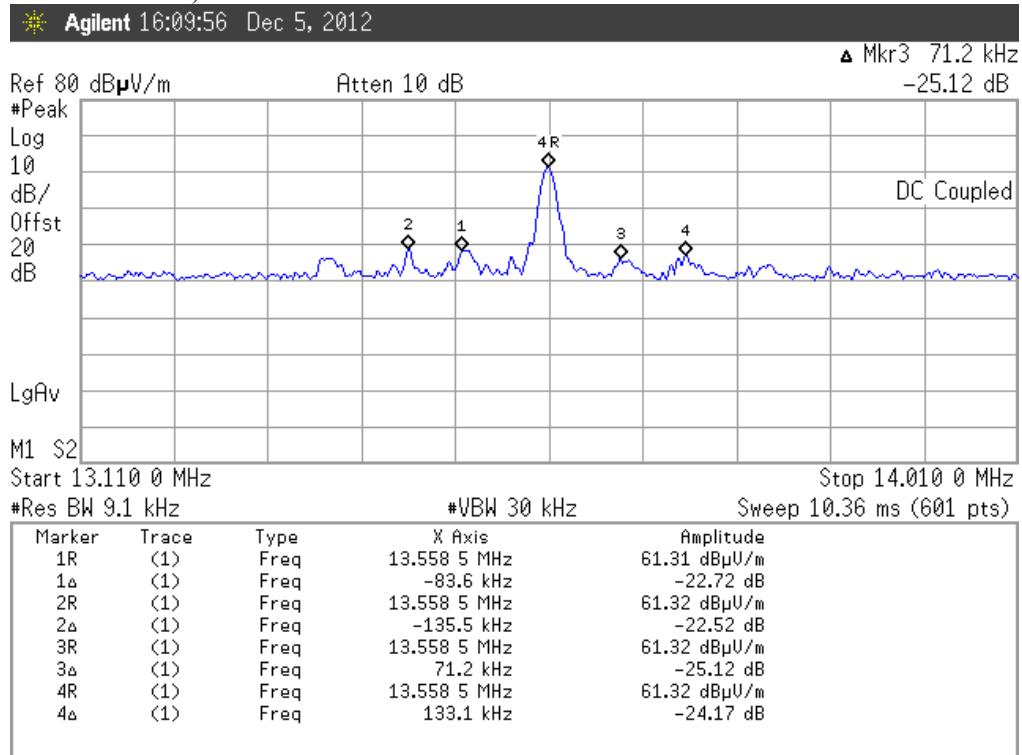
2. These test results of Table 1 and Table 2 were measured at the 3 m distance.

\*\* The measured result is within the test standard limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95 % level of confidence. However, the result indicates that compliance is more probable than non-compliance.

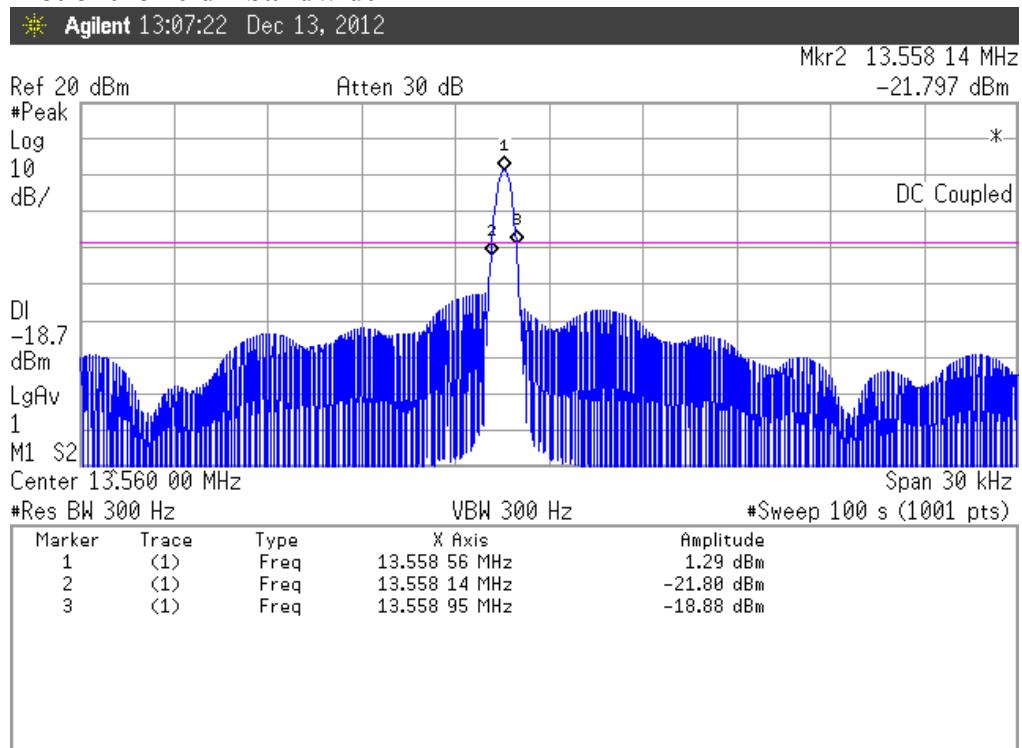

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Page 12 of 17

**Figure 1. Plot of the Band edge** (Preliminary measurement in the anechoic chamber at 3 m distance to find out the frequencies, at which the spurious emissions occur, with the peak detector function)



**Figure 2. Plot of the 20 dB bandwidth**





## 5.3 FREQUENCY TOLERANCE OF CARRIER SIGNAL

### 5.3.1 Regulation

#### FCC 47CFR15 – 15.225(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.

### 5.3.2 Measurement Procedure

#### Frequency stability versus environmental temperature

1. Supply the EUT with nominal AC voltage.
2. Turn the EUT off, and place it inside an environmental temperature chamber. For devices that are normally operated continuously, the EUT may be energized while inside the test chamber. For devices that have oscillator heaters, energize only the heater circuit while the EUT is inside the chamber.
3. RF output was connected to a frequency counter or other frequency-measuring instrument via feed through attenuators.
4. Set the temperature control on the chamber to the highest specified EUT operating temperature, and allow the temperature inside the chamber to stabilize at the set temperature before starting frequency measurements.
5. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup and two, five, and ten minutes after the EUT is energized.
6. After all measurements have been made at the highest specified temperature turn the EUT off.
7. Repeat the above measurement process for the EUT with the test chamber set at the appropriate temperature.

#### Frequency Stability versus Input Voltage

1. At room temperature ( $20 \pm 5$ ) °C supply the EUT with nominal AC voltage.
2. Couple RF output to a frequency counter or other frequency-measuring instrument.
3. Turn the EUT on, and measure the EUT operating frequency at startup and two, five, and ten minutes after startup.
4. Supply it with 85 % of the nominal AC voltage and repeat the above procedure.
5. Supply it with 115 % of the nominal AC voltage and repeat the above procedure.



## 5.3.3 Test Results:

PASS

Table 3: Frequency Tolerance

Reference Frequency: 13.559MHz, LIMIT: within  $\pm 1356$  Hz

Environment Temperature [°C]	Power Supplied [V <sub>AC</sub> ]	Carrier Frequency Measured with Time Elapsed							
		STARUP		2 minutes		5 minutes		10 minutes	
		[MHZ]	Err [Hz]	[MHZ]	Err [Hz]	[MHZ]	Err [Hz]	[MHZ]	Err [Hz]
+50	120	13.558547	453	13.558550	450	13.558555	445	13.558561	439
+40	120	13.558546	454	13.558545	455	13.558545	455	13.558546	454
+30	120	13.558547	453	13.558549	451	13.558551	449	13.558547	453
+20	120	13.558559	441	13.558557	443	13.558554	446	13.558551	449
+10	120	13.558561	439	13.558561	439	13.558560	440	13.558559	441
0	120	13.558550	450	13.558553	447	13.558557	443	13.558559	441
-10	120	13.558545	455	13.558544	456	13.558543	457	13.558546	454
-20	120	13.558529	471	13.558523	477	13.558514	486	13.558508	492

Reference Frequency: 13.559MHz, LIMIT: 100 PPM (within  $\pm 1356$  Hz)

Power Supplied [V <sub>AC</sub> ]	Carrier Frequency Measured with Time Elapsed							
	STARUP		2 minutes		5 minutes		10 minutes	
	[MHZ]	Err [Hz]	[MHZ]	Err [Hz]	[MHZ]	Err [Hz]	[MHZ]	Err [Hz]
85 %	13.558558	442	13.558556	444	13.558554	446	13.558551	449
100 %	13.558559	441	13.558557	443	13.558554	446	13.558551	449
115 %	13.558557	443	13.558554	446	13.558552	448	13.558550	450

Err [Hz] = Measured carrier frequency (MHz) - Reference Frequency (13.559 MHz)



## 5.4 AC POWER LINE CONDUCTED EMISSIONS

### 5.4.1 Regulation

#### FCC 47CFR15 – 15.207(a)

According to §15.207(a), 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  $50\mu\text{H}/50\Omega$  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 frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	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.

### 5.4.2 Test Procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a  $50\Omega/50\mu\text{H}$  LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.


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Page 16 of 17

**5.4.3 Test Results:**
**PASS**
**Table 4: Measured values of the Conducted Emissions**

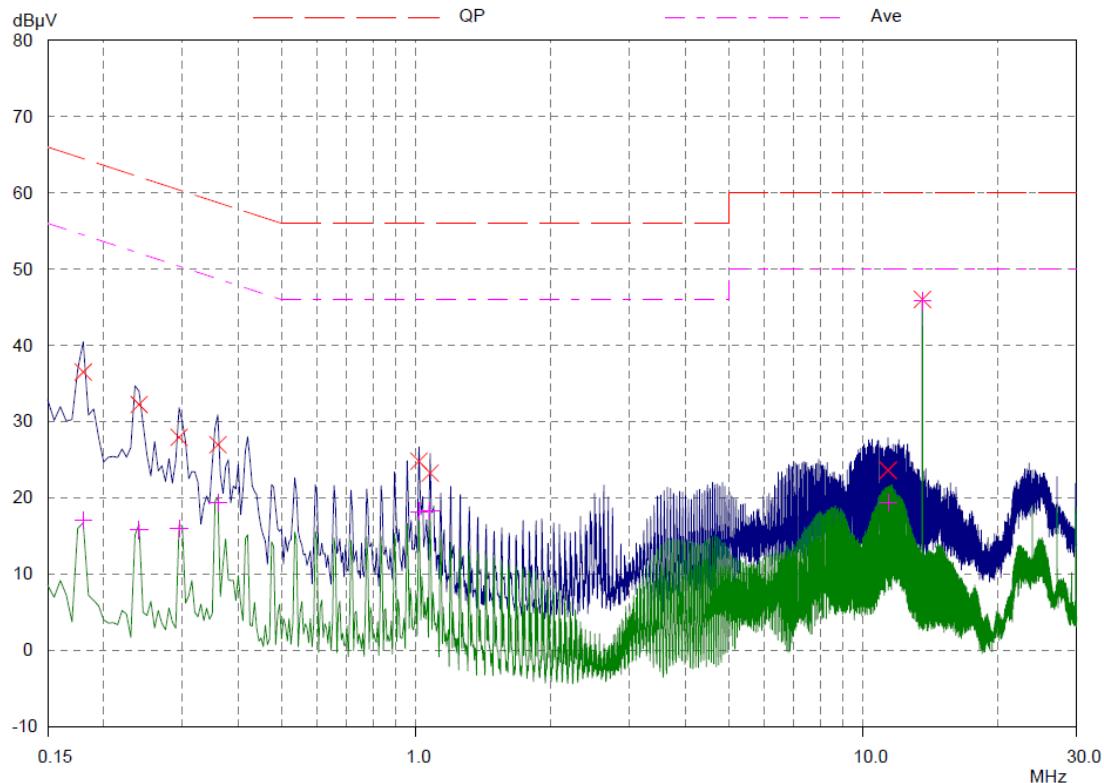
Frequency [MHz]	Reading [dB $\mu$ V]	L / N	CF [dB]	CL [dB]	Actual [dB $\mu$ V]	Limit [dB $\mu$ V]	Margin [dB]
<b>QUASI-PEAK DATA</b>							
0.2400	32.63	N	0.11	0.03	32.77	62.10	29.33
0.3000	29.69	N	0.12	0.04	29.85	60.24	30.39
0.3600	28.67	N	0.12	0.04	28.83	58.73	29.90
1.0150	24.80	L	0.14	0.05	24.99	56.00	31.01
1.0750	23.24	L	0.14	0.05	23.43	56.00	32.57
13.5600	46.03	L	0.39	0.18	46.60	60.00	13.40
<b>AVERAGE DATA</b>							
0.2400	24.38	N	0.11	0.03	24.52	52.10	27.58
0.3000	22.40	N	0.12	0.04	22.56	50.24	27.68
0.3600	22.13	N	0.12	0.04	22.29	48.73	26.44
1.0150	18.19	L	0.14	0.05	18.38	46.00	27.62
1.0750	18.33	L	0.14	0.05	18.52	46.00	27.48
13.5600	45.80	L	0.39	0.18	46.37	50.00	3.63

**Margin (dB) = Limit – Actual**
**[Actual = Reading + CF + CL]**
**L/N = LINE / NEUTRAL**
**CF/CL = Correction Factor and Cable Loss**

NOTE: All emissions not reported were more than 20 dB below the specified limit.

**SK TECH CO., LTD.**

Page 17 of 17

**Figure 3. Plot of the Conducted Emissions****Line – PE (Peak and Average detector used)****Neutral – PE (Peak and Average detector used)**