

# FCC RF Test Report

APPLICANT	: Verifone, Inc.
EQUIPMENT	: Point of Sales Terminal
BRAND NAME	: Verifone
MODEL NAME	: C680 3G
FCC ID	: B32C6803G
STANDARD	: FCC Part 15 Subpart C §15.225
CLASSIFICATION	: (DXX) Low Power Communication Device Transmitter

The testing was completed on Apr. 11, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

moelsar,



Approved by: Jones Tsai / Manager

# SPORTON INTERNATIONAL INC.

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**SPORTON INTERNATIONAL INC.** TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : B32C6803G



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- D.1 Test Result of Field Strength of Fundamental Emissions
- D.2 Results of Radiated Emissions (9 kHz~30MHz)
- D.3 Results of Radiated Emissions (30MHz~1GHz)



# **REVISION HISTORY**

VERSION	DESCRIPTION	ISSUED DATE
Rev. 01	Initial issue of report	Apr. 21, 2016
Rev. 02	Revising applicant address	May 03, 2016
	Rev. 01	Rev. 01 Initial issue of report



SUMMARY	OF THE TEST	RESULT
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Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	Part FCC Rule Description of Test			Under Limit
3.1	15.207		Complias	3.10 dB at
3.1	15.207	AC Power Line Conducted Emissions	Complies	27.118 MHz
2.0	15.005(a)(b)(a)	Field Strength of Fundamental	Complian	41.59 dB at
3.2 15.225(a)(b)(c)	Emissions	Complies	13.560 MHz	
3.3	2.1049	20dB Spectrum Bandwidth	Complies	-
3.3	-	99% OBW Spectrum Bandwidth	Complies	-
	1E 00E(d)			25.44 dB at
3.4	15.225(d) Radiated Emissions	Complies	0.52755 MHz	
15.209				for Quasi-Peak
3.5	15.225(e)	Frequency Stability	Complies	-
3.6	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.26dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±4.80dB	Confidence levels of 95%



# **1. GENERAL INFORMATION**

#### 1.1 Applicant

#### Verifone, Inc.

1400 West Stanford Ranch Road, Suite 100, 150 & 200, Rocklin CA 95765 USA

#### 1.2 Manufacturer

#### Inventec Appliances (Pudong) Corporation

Building 1 - 3, No.789 Pu Xing Road, Caohejing Export Processing Zone, Shanghai, P.R.C.

#### 1.3 Product Details

Items	Description
Tx/Rx Frequency Range	13.553 ~ 13.567MHz
Channel Number	1
20dBW	2.64 KHz
99%OBW	2.24 KHz
Antenna Type	Bobbin Antenna
Type of Modulation	ASK

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Specification of Accessory			
	Brand Name	Verifone, Inc.	
	Model Name	A111-3050223U	
AC Adapter	Bower Boting	Input : 100-240Vac, 50/60Hz, 0.5A	
	Power Rating	Output: 5.0V DC 2.2A	
	Power Cord	1.8 meter, non-shielded cable, without ferrite core	
	Brand Name	Verifone, Inc.	
Battery 1	Manufacturer	Palladium Energy Inc.	
	Model Name	BPK260-001	
	Brand Name	Verifone, Inc.	
Battery 2	Manufacturer	Panasonic Corporation	
	Model Name	BPK260-001	



#### 1.4 Modification of EUT

No modifications are made to the EUT during all test items.

# 1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.			
	No. 52, Hwa Ya 1 <sup>st</sup> Rd., H	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park,		
Test Site Location	Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No	Sporton Site No.			
Test Site No.	TH03-HY	CO05-HY	03CH07-HY	
Test Engineer	Tommy Lee Kai-Chun Chu James Chiu			
Temperature	21~24	23~24	21~23	
Relative Humidity	50~55	48~49	55~58	

Note: The test site complies with ANSI C63.4 2014 requirement.

#### 1.6 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.225
- ANSI C63.10-2013



#### 1.7 Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

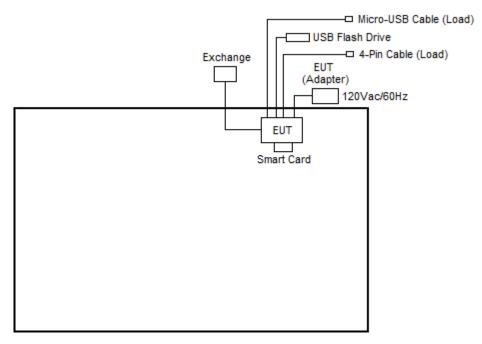
Test Items			
AC Power Line Conducted Emissions	Field Strength of Fundamental Emissions		
20dB Spectrum Bandwidth Frequency Stability			
Radiated Emissions 9kHz~30MHz	Radiated Emissions 30MHz~1GHz		
Note:			
1. The EUT was programmed to be in continuously transmitting mode.			
2. The ancillary equipment, NFC card, is used to make the EUT (NFC) continuously transmit at			

13.56MHz and is placed around 3 cm gap to the EUT.

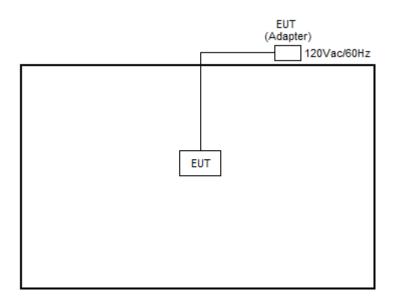


## 1.8 Test Configurations

#### <AC Conducted Emissions>



#### < For Fundamental Emissions and Mask and Radiated Emissions Measurement >





## 1.9 Table for Supporting Units

Support Unit	Manufacturer	Model	FCC ID
Base Station	Anritsu	MT8820C	N/A
Exchange	Sun Moon Star	SMS-4 PLUS	95180108
USB Dongle	Transcend	TS8GJF300	FCC DoC
SD Card	SanDisk	MicroSD HC	FCC DoC
Smart Card	N/A	N/A	N/A

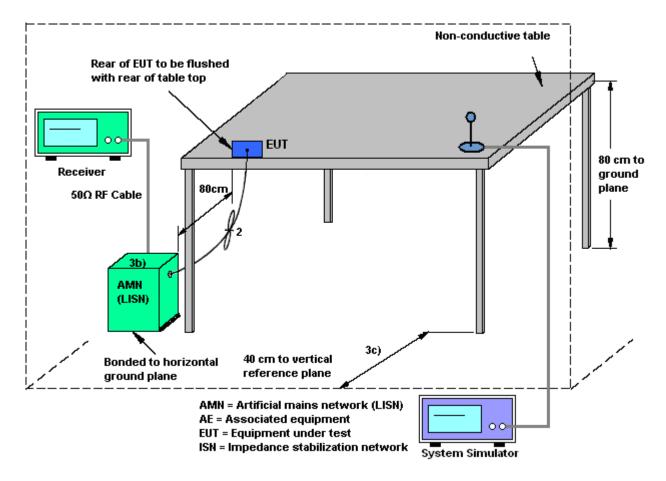


## 2. CONDUCTED EMISSION TEST

#### 2.1 Measuring Instruments

See list of measuring instruments of this test report.

#### 2.2 Test setup



### 2.3 Test Result of Conducted Emission Test

Please refer to Appendix B.

#### 2.4 AC Power Line Conducted Emissions Measurement

#### 2.4.1 Limit

For equipment 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.

Frequency of Emission	Conducted Limit (dBµV)		
(MHz)	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.

#### 2.4.2 Test Procedures

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.



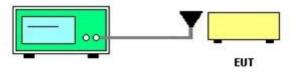
### 3. CONDUCTED TEST ITEMS

#### 3.1 Measuring Instruments

See list of measuring instruments of this test report.

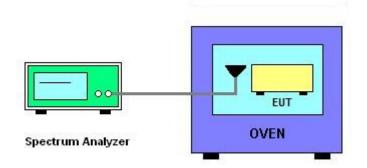
#### 3.2 Test Setup

#### 3.2.1 20dB and 99% OBW Spectrum Bandwidth



Spectrum Analyzer

#### 3.2.2 Frequency Stability



#### 3.3 Test Result of Conducted Test Items

Please refer to Appendix C.



#### 3.4 20dB and 99% OBW Spectrum Bandwidth Measurement

#### 3.4.1 Limit

Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553~13.567MHz.

#### 3.4.2 Test Procedures

- 1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
- 2. The resolution bandwidth of 1 kHz and the video bandwidth of 3 kHz were used.
- 3. Measured the spectrum width with power higher than 20dB below carrier.
- 4. Measured the 99% OBW.

#### 3.5 Frequency Stability Measurement

#### 3.5.1 Limit

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) 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.

#### 3.5.2 Test Procedures

- 1. The spectrum analyzer connected via a receive antenna placed near the EUT.
- 2. EUT have transmitted signal and fixed channelize.
- 3. Set the spectrum analyzer span to view the entire emissions bandwidth.
- 4. Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
- 5. The fc is declaring of channel frequency. Then the frequency error formula is  $(fc-f)/fc \times 10^6$  ppm and the limit is less than ±100ppm.
- 6. Extreme temperature rule is -20°C~50°C.



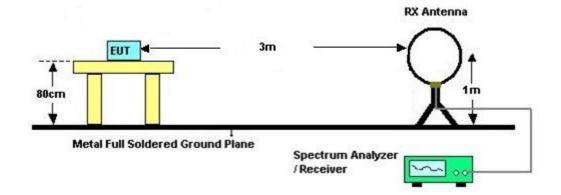
### 4. RADIATED TEST ITEMS

#### 4.1 Measuring Instruments

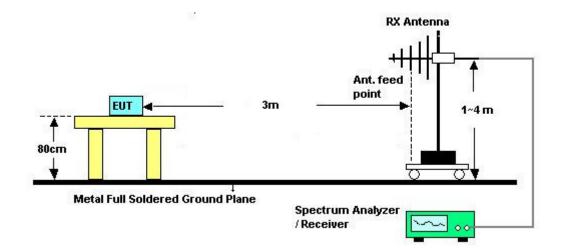
See list of measuring instruments of this test report.

#### 4.2 Test Setup

#### 4.2.1 For radiated emissions below 30MHz



#### 4.2.2 For radiated emissions above 30MHz



#### 4.3 Test Result of Radiated Test Items

Please refer to Appendix D.



#### 4.4 Field Strength of Fundamental Emissions and Mask Measurement

#### 4.4.1 Limit

Rules and specifications		FCC CFR 47 Part 15 section 15.225							
nules and specifications	IC RSS-210 A2.6								
Description	Compliance with th	e spectrum mask is t	ested with RBW set t	o 9kHz.					
Freq. of Emission (MHz)	Field Strength	Field Strength	Field Strength	Field Strength					
	(µV/m) at 30m	(dBµV/m) at 30m	(dBµV/m) at 10m	(dBµV/m) at 3m					
1.705~13.110	30	29.5	48.58	69.5					
13.110~13.410	106	40.5	59.58	80.5					
13.410~13.553	334	50.5	69.58	90.5					
13.553~13.567	15848	84.0	103.08	124.0					
13.567~13.710	334	50.5	69.58	90.5					
13.710~14.010	106	40.5	59.58	80.5					
14.010~30.000	30	29.5	48.58	69.5					

#### 4.4.2 Test Procedures

- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
- 4. For Fundamental emissions, use the receiver to measure QP reading.
- 5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
- 6. Compliance with the spectrum mask is tested with RBW set to 9kHz. Note: Emission level ( $dB\mu V/m$ ) = 20 log Emission level ( $\mu V/m$ ).



#### 4.5 Radiated Emissions Measurement

#### 4.5.1 Limit

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

Frequencies	Field Strength	Measurement Distance
(MHz)	(μV/m)	(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

#### 4.5.2 Measuring Instrument Setting

The following table is the setting of receiver.

Receiver Parameter	Setting
Attenuation	Auto
Frequency Range: 9kHz~150kHz	RBW 200Hz for QP
Frequency Range: 150kHz~30MHz	RBW 9kHz for QP
Frequency Range: 30MHz~1000MHz	RBW 120kHz for Peak

**Note:** The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.



#### 4.5.3 Test Procedures

- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 1. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 2. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 3. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 4. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
- 6. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. Antenna Requirements

#### 4.5.4 Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

#### 4.5.5 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



# 5. LIST OF MEASURING EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	AC POWER	AFC-500W	F104070011	50Hz~60Hz	Dec. 02, 2015	Mar. 30, 2016 ~ Mar. 31, 2016	Dec. 01, 2016	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 24, 2015	Mar. 30, 2016 ~ Mar. 31, 2016	Jun. 23, 2016	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 20, 2015	Mar. 30, 2016 ~ Mar. 31, 2016	Nov. 19, 2016	Conducted (TH03-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Apr. 07, 2016 ~ Apr. 11, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 26, 2015	Apr. 07, 2016 ~ Apr. 11, 2016	Aug. 25, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Apr. 07, 2016 ~ Apr. 11, 2016	Dec. 01, 2016	Conduction (CO05-HY)
Bilog Antenna	TESEQ	CBL 6111D	35419	30MHz to 1GHz	Jan. 13, 2016	Apr. 07, 2016	Jan. 12, 2017	Radiation (03CH07-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY5413008 5	20Hz ~ 8.4GHz	Nov. 04, 2015	Apr. 07, 2016	Nov. 03, 2016	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Apr. 07, 2016	Sep. 01, 2016	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY5347011 8	10Hz~44GHz	Feb. 27, 2016	Apr. 07, 2016	Feb. 26, 2017	Radiation (03CH07-HY)
Controller	ChainTek	Chaintek 3000	N/A	Control Turn table	N/A	Apr. 07, 2016	N/A	Radiation (03CH07-HY)
Controller	Max-Full	MF7802	MF7802083 68	Control Ant Mast	N/A	Apr. 07, 2016	N/A	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Apr. 07, 2016	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Apr. 07, 2016	N/A	Radiation (03CH07-HY)
Amplifier	Sonoma-Instrum ent	310 N	187282	10MHz~1GHz	Dec. 31, 2015	Apr. 07, 2016	Dec. 30, 2016	Radiation (03CH07-HY)



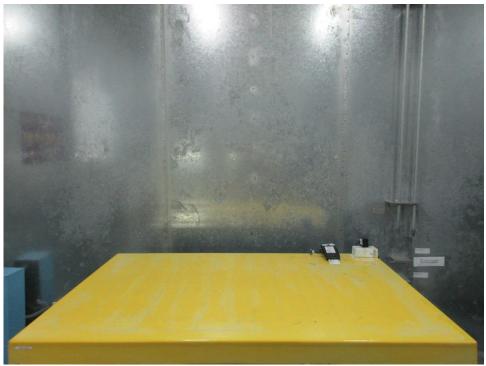
# **Appendix A. Setup Photographs**

<Conducted Emission>

<Original Test Result>



<Terminal Test Result>



**SPORTON INTERNATIONAL INC.** TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : B32C6803G 

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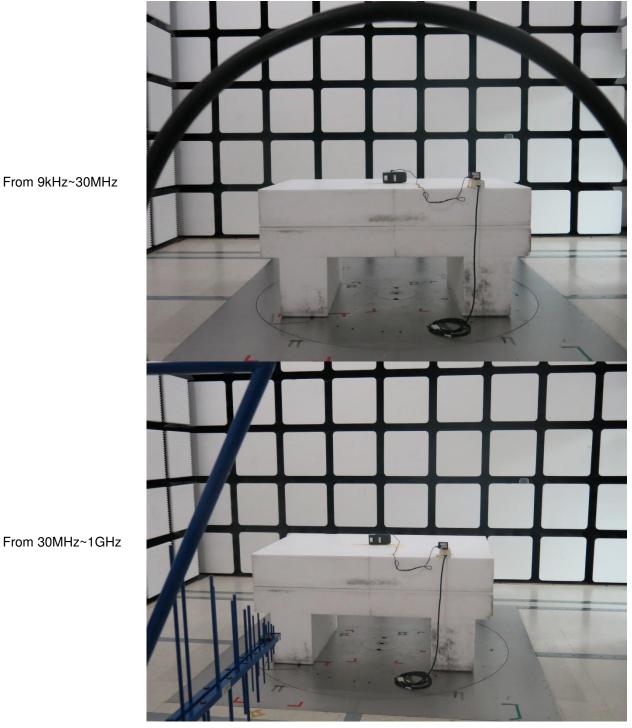
 Report Issued Date
 : May 03, 2016

 Report Version
 : Rev. 02

 Report Template No.: BU5-FR15CNFC Version 1.0



#### <Radiated Emission>





# **Appendix B. Test Results of Conducted Emission Test**

#### <Original Test Result>

	NFC Tx			Test V	oltage :		120Vac / 60Hz
	GSM1900 Idle	e + Sm	art Ca	ard Re	ader + I	Magneti	c Card Reader + RFID
	Battery 1 + Ac	apter -	- RS-2	32/4-F	in Cable	e (Load)	+ RS-232/RJ11 Cable (L
nction Type :	-	•				. ,	Micro-USB Port (Cable L
						-	Storage Device)
	+ Secondary I		5010	πισαι			Storage Device)
Level in dBµV	100 90 80 70 60 50 40 30 20	/**n	/				- <u>OP Limit at Main P</u> orts Ave Limit at Main Ports
	10 0 150k 300 4	00 500	800 1M	2M Frequer	3M 4M icy in Hz	5M 6 8	10M 20M 30M
Final Result	0		800 1M			5M 6 8	10M 20M 30M
Frequency	150k 300 4 : Quasi-Peak Quasi-Peak		800 1M	Frequer	ncy in Hz Margin	Limit	1
Frequency (MHz)	Quasi-Peak (dBμV)	Filter	Line	Frequer Corr. (dB)	Margin (dB)	Limit (dBµV)	1
Frequency (MHz) 0.494000	150k 300 4 : Quasi-Peak Quasi-Peak	ζ		Frequent Corr. (dB) 19.6	Margin (dB) 12.0	Limit	1
Frequency (MHz)	0 150k 300 4 : Quasi-Peak (dBµV) 44.1	Filter	Line L1	Frequer Corr. (dB)	Margin (dB)	Limit (dBµV) 56.1	1
Frequency (MHz) 0.494000 0.534000	о 150k 300 4 t : Quasi-Peak (dBµV) 44.1 43.4	Filter Off Off	Line L1 L1	Frequen Corr. (dB) 19.6 19.6	Margin (dB) 12.0 12.6	Limit (dBµV) 56.1 56.0	1
Frequency (MHz) 0.494000 0.534000 0.566000	Cuasi-Peak (dBμV) 44.1 43.4 39.5	Filter Off Off Off	Line L1 L1 L1	Frequen (dB) 19.6 19.6	Margin (dB) 12.0 12.6 16.5	Limit (dBµV) 56.1 56.0 56.0	1
Frequency (MHz) 0.494000 0.534000 0.566000 1.030000 1.518000 2.006000	царани и предистание         300 4           150к         300 4           Quasi-Peak         (dBµV)           44.1         43.4           39.5         36.0           35.4         34.8	Filter Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1	Frequent (dB) 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 12.0 12.6 16.5 20.0 20.6 21.2	Limit (dBµV) 56.1 56.0 56.0 56.0 56.0 56.0	1
Frequency (MHz) 0.494000 0.534000 0.566000 1.030000 1.518000 2.006000 2.926000	с: Quasi-Peak (dBµV) 44.1 43.4 39.5 36.0 35.4 34.8 33.1	Filter Off Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1 L1	Frequer (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 12.0 12.6 16.5 20.0 20.6 21.2 22.9	Limit (dBµV) 56.1 56.0 56.0 56.0 56.0 56.0 56.0	1
Frequency (MHz) 0.494000 0.534000 0.566000 1.030000 1.518000 2.006000	царани и предистание         300 4           150к         300 4           Quasi-Peak         (dBµV)           44.1         43.4           39.5         36.0           35.4         34.8	Filter Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1	Frequent (dB) 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 12.0 12.6 16.5 20.0 20.6 21.2	Limit (dBµV) 56.1 56.0 56.0 56.0 56.0 56.0	1



lode :	NFC Tx			Test V	oltage :	
	GSM1900 Idl	e + Sm	art Ca	ard Re	ader + N	Vagneti
	Battery 1 + A	dapter +	RS-2	232/4-F	in Cable	e (Load)
on Type :	+ Printer + SA	·				· ,
						-
	+ Secondary	Micro-U	SB PC	ort (Dat	a link w	ith USB
	100	den le de le de				
	90-		<u>.</u>			
	80-	······································				
	70	÷				
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Bµ∕						CISPR22-
Level in dBuV	50	See			••	
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	30	J 🔶 🖷			•	
			•		•	
	20					
	10					
	0	+ + + +				
	150k 300	400 500 8	300 1M	2M Frequer	3M 4M	5M 6 8
Final Result	· Average			Frequer		
Frequency	Average			Corr.	Margin	Limit
(MHz)	(dBµV)	Filter	Line	(dB)	(dB)	(dBµV)
0.494000	38.8	Off	L1	19.6	7.3	46.1
0.434000			1.4	10.6		
0.534000	38.4	Off	L1	19.6	7.6	46.0
0.534000 0.566000	32.7	Off	L1	19.6	13.3	46.0
0.534000 0.566000 1.030000	32.7 25.7	Off Off	L1 L1	19.6 19.6	13.3 20.3	46.0 46.0
0.534000 0.566000 1.030000 1.518000	32.7 25.7 25.9	Off Off Off	L1 L1 L1	19.6 19.6 19.6	13.3 20.3 20.1	46.0 46.0 46.0
0.534000 0.566000 1.030000	32.7 25.7	Off Off	L1 L1	19.6 19.6	13.3 20.3 20.1 21.7	46.0 46.0
0.534000 0.566000 1.030000 1.518000 2.006000	32.7 25.7 25.9 24.3	Off Off Off Off	L1 L1 L1 L1	19.6 19.6 19.6 19.6	13.3 20.3 20.1	46.0 46.0 46.0 46.0
0.534000 0.566000 1.030000 1.518000 2.006000 2.926000	32.7 25.7 25.9 24.3 22.4	Off Off Off Off Off	L1 L1 L1 L1 L1	19.6 19.6 19.6 19.6 19.6	13.3 20.3 20.1 21.7 23.6	46.0 46.0 46.0 46.0 46.0



Test Mode	:	1	NFC Tx			Test V	oltage :		120Vac / 60Hz
		(	GSM1900 Idle	+ Sm	art Ca	ard Rea	ader + N	/lagnetic	Card Reader + RFID Off +
			Battery 1 + Ad	apter 4	- RS-2	32/4-P	in Cable	(Load)	+ RS-232/RJ11 Cable (Load)
Function T	уре	: :	-	•				. ,	Micro-USB Port (Cable Load)
								-	
_		-	+ Secondary N		30 PU	n (Data	a link wi	III USB	Storage Device)
	1	100 T							
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		60					CI	<u>SPR 22-0</u>	PLimitat Main Ports
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			300 400 500	800 1			M 4M 5M	6 8 10M	20M 30M
		10	300 400 500	800 1		2M 3 quency		6 8 10M	20M 30M
Final		10 0 150k	300 400 500 : Quasi-Peak					6 8 10M	20M 30M
Fre	Re	10 0 150k	: Quasi-Peak Quasi-Peak		Fre	quency Corr.	in H z Margin	Limit	20M 30M
Fre (	Re: equer	10 0 150k	: Quasi-Peak Quasi-Peak (dBµV)	Filter	Fre Line	quency Corr. (dB)	in Hz Margin (dB)	Limit (dBµV)	20M 30M
Fre (1 0.4	Res equer (MHz 4940	10 0 150k sult ncy ) 00	: Quasi-Peak Quasi-Peak (dBµV) 42.6	Filter Off	Fre Line N	Corr. (dB) 19.6	in Hz Margin (dB) 13.5	Limit (dBµV) 56.1	20M 30M
Fre () 0.4 0.5	Re: equer (MHz 4940 5260	10 0 150k sult ncy ) 00 00	: Quasi-Peak Quasi-Peak (dBµV) 42.6 42.7	Filter Off Off	Fre Line N N	Quency Corr. (dB) 19.6 19.6	in H z Margin (dB) 13.5 13.3	Limit (dBµV) 56.1 56.0	20M 30M
Fre (( 0.4 0.5 1.0	Re: equer (MHz 4940 5260 0220	10 150k sult ncy ) 00 00 00	: Quasi-Peak Quasi-Peak (dBμV) 42.6 42.7 37.7	Filter Off Off Off	Fre Line N N N	Corr. (dB) 19.6 19.6 19.6	in Hz Margin (dB) 13.5 13.3 18.3	Limit (dBµV) 56.1 56.0 56.0	20M 30M
Fre (1 0.4 0.5 1.0 1.4	Re: equer (MHz 4940 5260	10 150k sult ncy 00 00 00 00	: Quasi-Peak Quasi-Peak (dBµV) 42.6 42.7	Filter Off Off	Fre Line N N	Quency Corr. (dB) 19.6 19.6	in H z Margin (dB) 13.5 13.3	Limit (dBµV) 56.1 56.0	20M 30M
Fre (( 0.4 0.5 1.0 1.4 1.7	Re: (MHz 4940 5260 0220 4780	10 0 150k sult ncy ) 00 00 00 00 00	: Quasi-Peak Quasi-Peak (dBμV) 42.6 42.7 37.7 38.0	Filter Off Off Off Off	Fre Line N N N N	Corr. (dB) 19.6 19.6 19.6 19.6	in Hz Margin (dB) 13.5 13.3 18.3 18.3	Limit (dBµV) 56.1 56.0 56.0 56.0	20M 30M
Fre (( 0.4 0.5 1.0 1.4 1.7 2.1	Re: equer (MHz 4940) 52600 02200 47800 71800	10 0 150k sult sult 00 00 00 00 00 00 00 00 00 0	: Quasi-Peak Quasi-Peak (dBµV) 42.6 42.7 37.7 38.0 37.0	Filter Off Off Off Off	Fre Line N N N N N	Corr. (dB) 19.6 19.6 19.6 19.6 19.6	in Hz Margin (dB) 13.5 13.3 18.3 18.0 18.0 19.0	Limit (dBµV) 56.1 56.0 56.0 56.0	20M 30M
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Fre (( 0.4 0.5 1.0 1.4 1.7 2.1 2.8 3.6 4.3	Re: 2quer (MHz 4940) 52600 0220 4780 7180 1740 8780 6460 3100	10 0 150k sult sult 00 00 00 00 00 00 00 00 00 0	: Quasi-Peak (dBμV) 42.6 42.7 37.7 38.0 37.0 37.9 36.3 38.0 38.0 37.1	Filter Off Off Off Off Off Off Off Off	Fre Line N N N N N N N N N N N	Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.5 19.6 19.6 19.6 19.6	in Hz Margin (dB) 13.5 13.3 18.3 18.0 19.0 19.0 18.1 19.7 18.0 18.0 18.9	Limit (dBµV) 56.1 56.0 56.0 56.0 56.0 56.0 56.0 56.0 56.0	20M 30M
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Fre (( 0.4 0.5 1.0 1.4 1.7 2.1 2.6 3.6 4.3 13. 20.	Re: 2quer (MHz 4940) 52600 0220 4780 7180 1740 8780 6460 3100	10 0 150k sult ncy ) 00 00 00 00 00 00 00 00 00	: Quasi-Peak (dBμV) 42.6 42.7 37.7 38.0 37.0 37.9 36.3 38.0 38.0 37.1	Filter Off Off Off Off Off Off Off Off	Fre Line N N N N N N N N N N N	Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.5 19.6 19.6 19.6 19.6	in Hz Margin (dB) 13.5 13.3 18.3 18.0 19.0 19.0 18.1 19.7 18.0 18.0 18.9	Limit (dBµV) 56.1 56.0 56.0 56.0 56.0 56.0 56.0 56.0 56.0	



Fest Mod	e :		NFC Tx			Test V	oltage :	ŀ	120Vac / 60Hz
			GSM1900 Idl	e + Sm	art Ca	ard Re	ader + N	/agnetic	Card Reader + RFID Off +
			Ratterv 1 ⊥ A	danter L	BS-2	32/4-P	in Cable	(Load)	+ RS-232/RJ11 Cable (Load
unction	Тур	e :	-	•				. ,	•
			+ Printer + SA	AM Card	d + Mie	cro SD	Card + H	rimary	Micro-USB Port (Cable Load
			+ Secondary	Micro-U	SB Po	ort (Dat	a Link w	ith USB	Storage Device)
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	Levelin dBµV						CIS	PR 22-A	ve Limit at Main Ports
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		10	300 400 50	0 800 1		2M 3 quency		6 8 10M	20M 30M
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	al Re reque	10 0 150k			Fre			6 8 10M	20M 30M
		10 0 150k	t : Average	5 800 1		quency	in Hz		20M 30M
F	reque (MH 0.4940	10 0 150k esult ency z) 000	t : Average Average (dBμV) 36.8	Filter Off	Fre Line N	Corr. (dB) 19.6	Margin (dB) 9.3	Limit (dBµV) 46.1	20M 30M
	reque (MH: 0.494( 0.526(	10 150k esult ency z) 000 000	t : Average Average (dBµV) 36.8 36.3	Filter Off Off	Free Line N N	Corr. (dB) 19.6 19.6	Margin (dB) 9.3 9.7	Limit (dBµV) 46.1 46.0	20M 30M
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Fi C C 1	reque (MH: 0.4940 0.5260 1.0220 1.4780	10 150k escult ency z) 000 000 000	t : Average (dBμV) 36.8 36.3 28.8 28.5	Filter Off Off Off	Fre Line N N N N	Corr. (dB) 19.6 19.6 19.6 19.6	Margin (dB) 9.3 9.7 17.2 17.5	Limit (dBµV) 46.1 46.0 46.0 46.0	20M 30M
Fi C 1 1	reque (MH: 0.4940 0.5260 1.0220 1.4780 1.7180	2) 000 000 000 000	Average (dBμV)           36.8           36.3           28.8           28.5           27.3	Filter Off Off Off Off Off	Free Line N N N N	Corr. (dB) 19.6 19.6 19.6 19.6 19.6	Margin (dB) 9.3 9.7 17.2 17.5 18.7	Limit (dBµV) 46.1 46.0 46.0 46.0 46.0	20M 30M
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(1) with antenna

Remark: 13.558MHz is the NFC RF fundamental signal.

(2) with dummy load

Remark: Only the fundamental NFC signal needs to be retested per C63.4.

#### <Terminal Test Result>

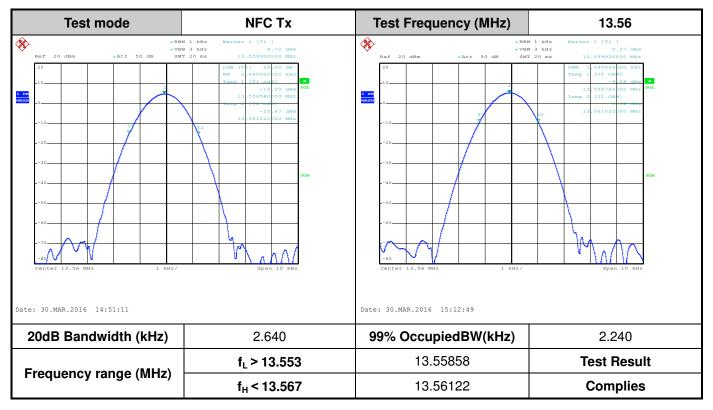
Fest Mode :	NFC Tx	Test	Voltage :	120Vac / 60Hz
	GSM1900 Idle + S	Smart Card Rea	der + Magnetic	Card Reader + RFID Tx + Battery
	1 + Adapter + RS-	232/4-Pin Cabl	e (Load) + RS-2	232/RJ11 Cable (Load) + Printer +
Function Type :	SAM Card + Micro	SD Card + Pr	imary Micro-US	B Port (Cable Load) + Secondary
	Micro-USB Port (E		-	
				,
	100			
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	60			22-QP Limit at Main Ports
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Final Resu	lt : Quasi-Peak			
Frequency	Quasi-Peak	Cori	. Margin Lim	it
(MHz)	(dBµV)	Iter Line (dB		
13.558000 Final Resu	25.3 0 It : Average	Off L1 19.8	34.7 60.	
Frequency	Average	Iter Line Corr	. Margin Lim	it
(MHz)	(dBµV)	(dB)		
13.558000	19.6 0	Off L1 19.8	30.4 50.	



Function Type :         Battery 1 + Adapter + RS-232/4-Pin Cable (Load) + RS-232/RJ11 Cable (Load)         Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load)         Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Sec	Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load) Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link (Data L	Test Mode :	NFC Tx		Test V	oltage :	12	0Vac / 60Hz	
Function Type : Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load) Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: Clipped and Colspan="2">Clipped and Colspan="2"       Clipped and Colspan="	Function Type : Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load) Secondary Micro-USB Port (Data Link with USB Storage Device)		GSM1900 lo	lle + Sma	rt Card Re	ader + N	lagnetic (	Card Reader +	RFID Off -
Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load)         Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device) </td <td>Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load) Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: seco</td> <td></td> <td>Battery 1 + A</td> <td>dapter + F</td> <td>RS-232/4-Pi</td> <td>n Cable (</td> <td>Load) + F</td> <td>RS-232/RJ11 Ca</td> <td>ble (Load) -</td>	Printer + SAM Card + Micro SD Card + Primary Micro-USB Port (Cable Load) Secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: secondary Micro-USB Port (Data Link with USB Storage Device)         Image: seco		Battery 1 + A	dapter + F	RS-232/4-Pi	n Cable (	Load) + F	RS-232/RJ11 Ca	ble (Load) -
image: state of the state	Frequency       Quasi-Peak       Filter       Line       Corr.       Margin       Limit         MHz)       Kverage       Filter       Line       Corr.       Margin       Limit         Mitz       Kverage       Filter       Line       Corr.       Margin       Limit	Function Type :	Printer + SA	M Card + I	Micro SD C	ard + Pri	mary Mic	ro-USB Port (C	able Load)
Find Result : Quasi-Peak       Filter       Line       Corr.       Margin       Limit         Margin       Cispest       Cispest <td>i Signal colspan="2"&gt;i Signal colspan="2"&gt;i Signal colspan="2"&gt;i Signal colspan="2"&gt;i Signal colspan="2"&gt;i Signal colspan="2"&gt;i Signal colspan="2" i Signal colspan="2" i</td> <td></td> <td>Secondary M</td> <td>licro-USB I</td> <td>Port (Data L</td> <td>ink with L</td> <td>JSB Stora</td> <td>age Device)</td> <td></td>	i Signal colspan="2">i Signal colspan="2">i Signal colspan="2">i Signal colspan="2">i Signal colspan="2">i Signal colspan="2">i Signal colspan="2" i		Secondary M	licro-USB I	Port (Data L	ink with L	JSB Stora	age Device)	
Find Result : Quasi-Peak       Filter       Line       Corr.       Margin       Limit         Margin       Cispest       Cispest <td><math display="block">\begin{split} &amp; \int_{a} </math></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	$\begin{split} & \int_{a} $								
Frequency       Quasi-Peak       Filter       Line       Corr.       Margin       Linit         Margin       Cispester	i and a second s								
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final Result : Quasi-Peak       Filter       Line       Corr.       Margin       Limit         final Result : Average       Filter       Line       Corr.       Margin       Limit         final Result : Average       Filter       Line       Corr.       Margin       Limit         frequency       Quasi-Peak       Filter       Line       Corr.       Margin       Limit         frequency       Quasi-Peak       Filter       Line       Corr.       Margin       Limit         final Result : Average       Filter       Line       Corr.       Margin       Limit	i geodesication of the second systemi geodesication of		70						
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Image: state sta	μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ       μ		30	hat pring	With which which which	124 MARCAN	a human had a man	Land Marca	
Final Result : Quasi-Peak       Filter       Line       Corr.       Margin       Limit         (MHz)       (dBμV)       Filter       Line       Corr.       Margin       Limit         13.558000       25.0       Off       N       19.8       35.0       60.0         Final Result : Average         Final Result : Average       Filter       Line       Corr.       Margin       Limit         (MHz)       (dBμV)       Filter       Line       Corr.       Margin       Limit         Final Result : Average       Filter       Line       Corr.       Margin       Limit	Image: fight reduce for the state of t		20						
150k       300 400 500       800 1M       2M       3M 4M 5M 6       8 10M       20M       30M         Frequency in Hz         Final Result : Quasi-Peak         K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K       K	150k       300 400 500       800 1M       2M       3M 4M 5M 6       8 10M       20M       30M         Frequency in Hz         Final Result : Quasi-Peak         Filter       Line       Corr.       Margin       Limit         (MHz)       (dBµV)       Filter       Line       Corr.       (dB)       (dBµV)         13.558000       25.0       Off       N       19.8       35.0       60.0         Final Result : Average         Frequency       Average       Filter       Line       Corr.       Margin       Limit         (MHz)       (dBµV)       Filter       Line       Corr.       Margin       Limit         (MHz)       (dBµV)       Filter       Line       Corr.       Margin       Limit		10						
Frequency in Hz         Final Result : Quasi-Peak         Frequency       Quasi-Peak       Filter       Line       Corr.       Margin       Limit         (MHz)       (dBµV)       Filter       Line       (dB)       (dBµV)         13.558000       25.0       Off       N       19.8       35.0       60.0         Final Result : Average         Frequency       Average       Filter       Line       Corr.       Margin       Limit	Frequency in Hz         Final Result : Quasi-Peak (dBμV)       Corr. (dB)       Margin (dBμV)         Frequency (MHz)       Quasi-Peak (dBμV)       Filter       Line       Corr. (dB)       Margin (dBμV)       Limit (dBμV)         13.558000       25.0       Off       N       19.8       35.0       60.0         Final Result : Average         Frequency       Average       Filter       Line       Corr. (dB)       Margin (dBμV)         (MHz)       (dBμV)       Filter       Line       Corr. (dB)       (dBμV)		•						
Frequency (MHz)Quasi-Peak (dBμV)FilterLineCorr. (dB)Margin (dB)Limit (dBμV)13.55800025.0OffN19.835.060.0Final Result : AverageFiguencyAverageFilterLineCorr.MarginLineCorr.MarginLineCorr.MarginLimit	Frequency (MHz)Quasi-Peak (dBμV)FilterLineCorr. (dB)Margin 		150k 30	0 400 500 80			M 6 8 10M	20M 30M	
(MHz)(dBμV)FilterLine(dB)(dB)(dBμV)13.55800025.0OffN19.835.060.0Final Result : AverageFiequencyAverageFilterLineCorr.MarginLine	(MHz)         (dBμV)         Filter         Line         (dB)         (dB)         (dBμV)           13.558000         25.0         Off         N         19.8         35.0         60.0           Final Result : Average (MHz)         Average (dBμV)         Filter         Line         Corr. (dB)         Margin (dB)         Limit (dB)	Final Resu	ılt : Quasi-Pe	ak					
13.55800025.0OffN19.835.060.0Final Result : AverageFrequencyAverageFilterLineCorr.MarginLimit	13.558000         25.0         Off         N         19.8         35.0         60.0           Final Result : Average (MHz)         Average (dBμV)         Filter         Line         Corr. (dB)         Margin (dB)         Limit (dBµV)	-	-	Filter	ino	-			
Final Result : Average Frequency Average Filter Line Corr. Margin Limit	Final Result : AverageFrequencyAverageFilterLineCorr.MarginLimit(MHz)(dBμV)Filter(dB)(dB)(dBμV)			Off					
Filter Line	(MHz) (dBµV) Filter Line (dB) (dBµV)	Final Resu	It : Average						
				Filter	line	-			
		. ,		Off		. ,			



# **Appendix C. Test Results of Conducted Test Items**



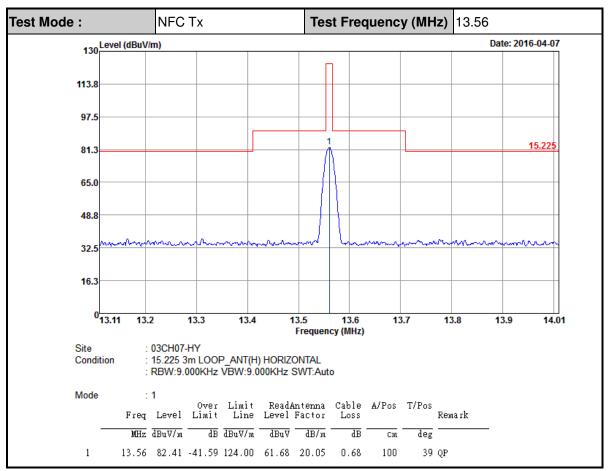
#### C.1 Test Result of 20dB Spectrum Bandwidth

Voltage vs. Freque	ncy Stability	Temperature vs. I	Frequency Stability
Voltage (Vac)	Measurement Frequency (MHz)	Temperature (°C)	Measurement Frequency (MHz)
120	13.559890	-20	13.559940
102	13.559880	-10	13.559940
138	13.559900	0	13.559920
		10	13.559920
		20	13.559900
		30	13.559890
		40	13.559880
		50	13.559880
Max.Deviation (MHz)	-0.000120	Max.Deviation (MHz)	-0.000120
Max.Deviation (ppm)	-8.8496	Max.Deviation (ppm)	-8.8496
Limit	FS < ±100 ppm	Limit	FS < ±100 ppm
Test Result	PASS	Test Result	PASS

#### C.2 Test Result of Frequency Stability

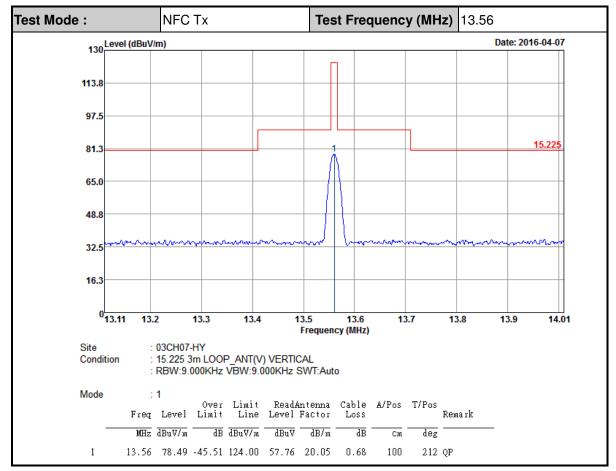


# Appendix D. Test Results of Radiated Test Items



**D.1 Test Result of Field Strength of Fundamental Emissions** 





Note: All NFC's spurious emissions are below 20dB of limits.

Test Mode :	NFC	Tx		Polariz	ation :	Hori	izontal		
Frequency (MHz)	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level (dBµV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
0.0368	50.08	-66.21	116.29	29.31	20.09	0.68	-	-	Average
0.06465	55.9	-55.49	111.39	35.18	20.04	0.68	-	-	Average
0.1094	39.63	-67.19	106.82	18.96	19.99	0.68	-	-	QP
0.12932	39.89	-65.48	105.37	19.24	19.97	0.68	-	-	Average
0.15102	32.43	-71.59	104.02	11.8	19.95	0.68	-	-	Average
0.52755	47.72	-25.44	73.16	27.14	19.9	0.68	100	0	QP
11.504	36.7	-32.8	69.5	15.97	20.05	0.68	-	-	QP
13.56	82.18	-	-	61.45	20.05	0.68	-	-	QP
24.712	37.69	-31.81	69.5	16.04	20.58	1.07	-	-	QP
29.71	37.7	-31.8	69.5	16.28	20.35	1.07	-	-	QP

#### D.2 Results of Radiated Emissions (9 kHz~30MHz)

Test Mode : NFC Tx					ation :	Vert	Vertical				
Frequency (MHz)	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level (dBµV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark		
0.037	54.6	-61.64	116.24	33.83	20.09	0.68	-	-	Average		
0.06465	47.51	-63.88	111.39	26.79	20.04	0.68	-	-	Average		
0.10806	38.56	-68.37	106.93	17.89	19.99	0.68	-	-	QP		
0.12932	34.66	-70.71	105.37	14.01	19.97	0.68	-	-	Average		
0.15068	31.57	-72.47	104.04	10.94	19.95	0.68	-	-	Average		
0.49	44.19	-29.61	73.8	23.61	19.9	0.68	100	0	QP		
13.216	37.21	-32.29	69.5	16.48	20.05	0.68	-	-	QP		
13.56	78.61	-	-	57.88	20.05	0.68	-	-	QP		
19.402	38.05	-31.45	69.5	17.01	20.36	0.68	-	-	QP		
28.1	37.28	-32.22	69.5	15.61	20.6	1.07	-	-	QP		

#### Note:

- 1. 13.56 MHz is fundamental signal which can be ignored.
- 2. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
- 4. Limit line = specific limits (dBµV) + distance extrapolation factor.

Test Mode : NFC Tx			Ро	larization	Horizontal					
Frequency (MHz)	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.27	28.23	-11.77	40	32.51	26	1.07	31.35	-	-	Peak
113.97	25.64	-17.86	43.5	38.03	17.57	1.55	31.51	-	-	Peak
209.28	34.13	-9.37	43.5	47.45	16.27	1.87	31.46	100	0	Peak
328.7	23.5	-22.5	46	31.72	20.61	2.41	31.24	-	-	Peak
626.2	28.83	-17.17	46	30.39	25.66	3.57	30.79	-	-	Peak
946.8	34.36	-11.64	46	30.69	30.13	4.07	30.53	-	-	Peak

#### D.3 Results of Radiated Emissions (30MHz~1GHz)

Test Mode : NFC Tx				Po	olarization	Vertical				
Frequency (MHz)	Leve ( dBµV/	Limit	Limit Line ( dBµV/m )	Read Level (dBµV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor (dB)	Ant Pos (cm)	Table Pos ( deg )	Remark
40.8	36.1 <sup>-</sup>	/ ( - /	40	46.69	19.84	1.07	31.49	100	0	Peak
67.8	25.2 <sup>-</sup>	1 -14.79	40	42.94	12.56	1.28	31.57	-	-	Peak
209.82	23.7	-19.8	43.5	37.02	16.27	1.87	31.46	-	-	Peak
441.4	25.28	3 -20.72	46	30.52	22.98	2.89	31.11	-	-	Peak
569.5	27.68	3 -18.32	46	30.41	24.91	3.24	30.88	-	-	Peak
818.7	30.7	1 -15.29	46	29.32	28.07	3.9	30.58	-	-	Peak

Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

- 2. Emission level  $(dB\mu V/m) = 20 \log Emission level (\mu V/m)$ .
- 3. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor= Level.