FCC Test Report

APPLICANT : HMD Global Oy EQUIPMENT : Mobile Phone

BRAND NAME : NOKIA MODEL NAME : TA-1283

FCC ID : 2AJOTTA-1283

STANDARD : 47 CFR Part 15 Subpart B

CLASSIFICATION: Certification

The product was received on Jul. 03, 2020 and testing was completed on Aug. 28, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Reviewed by: Jason Jia / Supervisor

JasonJia

Approved by: James Huang / Manager

Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

Sporton International (Kunshan) Inc.

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ACCREDITED
Cert #5145.02

Report No.: FC070302

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APPENDIX A. SETUP PHOTOGRAPHS

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC070302	Rev. 01	Initial issue of report	Sep. 07, 2020

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	4.44 dB at
					0.162 MHz
					Under limit
2.0	15.109 Radiated Emission	Dadiated Emission	45 400 limita	DACC	6.47 dB at
3.2		< 15.109 limits	PASS	46.490 MHz	
					for Quasi-Peak

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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1. General Description

1.1. Applicant

HMD Global Oy

Bertel Jungin aukio 9, 02600 Espoo, Finland

1.2. Manufacturer

HMD Global Oy

Bertel Jungin aukio 9, 02600 Espoo, Finland

1.3. Product Feature of Equipment Under Test

Product Feature				
Equipment	Mobile Phone			
Brand Name	NOKIA			
Model Name	TA-1283			
FCC ID	2AJOTTA-1283			
EUT supports Radios application	GSM/WCDMA/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth BR/EDR/LE FM Receiver and GNSS			
IMEI Code	Conduction: 353184110009201/353184110009219 for Sample 1 353184110046328/353184110046336 for Sample 2 Radiation: 353184110009920/353184110009938 for Sample 1 353184110045924/353184110045932 for Sample 2			
HW Version	MB_V3			
SW Version	0-00WW-A01			
EUT Stage	Identical Prototype			

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Remark:

- 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
- 2. There are two types of EUT, the differences is that please refer to the product equality declaration which is submitted separately. According to the difference, we choose the sample1 perform full test and sample 2 verifies the worst of sample1.

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1.4. Product Specification of Equipment Under Test

Standards-related Product Specification				
· · · · · · · · · · · · · · · · · · ·				
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2537.5 MHz ~ 2652.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz			
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 5: 869.7 MHz ~ 893.3 MHz LTE Band 7: 2622.5 MHz ~ 2687.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2537.5 MHz ~ 2652.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GNSS: 1559 MHz ~ 1610 MHz NFC: 13.56 MHz FM: 88 MHz ~ 108 MHz			
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna GNSS: PIFA Antenna NFC: Plate Antenna FM: External Handset Antenna			
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: BPSK (Uplink) HSDPA/DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) DC-HSDPA: 64QAM HSPA+: 16QAM(uplink is not supported) LTE: QPSK / 16QAM 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE: GFSK Bluetooth (1Mbps): GFSK Bluetooth (2Mbps): π/4-DQPSK Bluetooth (3Mbps): 8-DPSK GNSS: BPSK NFC: ASK FM: FM			

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Note: GNSS Rx = BDS + Galileo + GLONASS + GPS

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1.5. Modification of EUT

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

1.6. Test Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

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Test Firm	Sporton International (Kunshan) Inc.				
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone				
Test Site Location	Jiangsu Province 215300 People's Republic of China				
rest Site Location	TEL: +86-512-57900158				
	FAX: +86-512-57900958				
	0	FOO Designation No	FCC Test Firm		
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.		
	CO01-KS 03CH02-KS	CN1257	314309		

1.7. Test Software

Item	Site	Manufacture	Name	Version
1.	03CH02-KS	AUDIX	E3	6.2009-8-24a
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8. Applicable Standards

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

- 47 CFR Part 15 Subpart B
- ANSI C63.4-2014

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + Camera(Rear) + USB Cable 1(Charging from Adapter 1) + Battery 1 for Sample 1
	Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + Camera(Front) + USB Cable 2(Charing from Adapter) + Battery 1 for Sample 1
	Mode 3: WCDMA Band V Rx(High) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + MPEG4 + USB Cable 1(CHarging from Adapter) + Battery 1 for Sample 1
AC Conducted Emission	Mode 4: LTE Band 5 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + FM Rx(98MHz) + USB Cable 1(Charging from Adapter) + Battery 1 for Sample 1
	Mode 5: LTE Band 7 Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NFC On + USB Cable 1(Data Link with Notebook) + Battery 1 for Sample 1
	Mode 6: LTE Band 41 Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 for Sample 1
	Mode 7: LTE Band 5 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + Camera(Rear) + USB Cable 1(Charging from Adapter) + Battery 2 for Sample 2

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	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone -
	Camera(Rear) + USB Cable 1(Charging from Adapter 1) + Battery 1 fo Sample 1
	Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone - Camera(Front) + USB Cable 2(Charing from Adapter) + Battery 1 fo Sample 1
	Mode 3: WCDMA Band V Rx(High) + Bluetooth Idle + WLAN Idle(2.4G) - Earphone + MPEG4 + USB Cable 1(CHarging from Adapter) + Battery for Sample 1
Radiated	Mode 4: LTE Band 5 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + FM Rx(88MHz) + USB Cable 1(Charging from Adapter) + Battery 1 fo Sample 1
Emissions	Mode 5: LTE Band 7 Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NF0 On + USB Cable 1(Data Link with Notebook) + Battery 1 for Sample 1
	Mode 6: LTE Band 41 Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone - GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 fo Sample 1
	Mode 7: WCDMA Band V Rx(High) + Bluetooth Idle + WLAN Idle(2.4G) - Earphone + MPEG4 + USB Cable 1(CHarging from Adapter) + Battery 2 for Sample 2
	Mode 8: WCDMA Band V Rx(High) + Bluetooth Idle + WLAN Idle(2.4G) - Earphone + Camera(Rear) + USB Cable 1(CHarging from Adapter) - Battery 2 for Sample 2

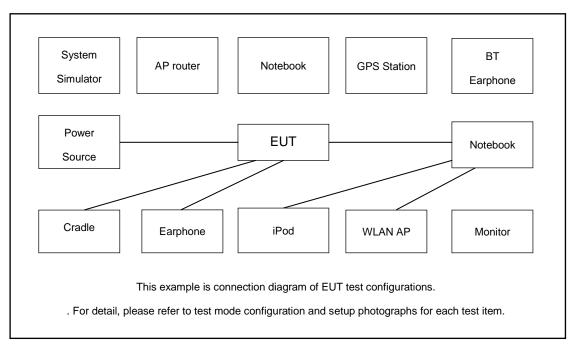
Remark:

- 1. The worst case of AC is mode 4; only the test data of this mode is reported.
- 2. The worst case of RE is mode 3; only the test data of this mode is reported.
- Data Link with Notebook means data application transferred mode between EUT and Notebook.
- **4.** Pre-scanned Low/Middle/High channel, the worst channel was recorded in this report.

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2.2. Connection Diagram of Test System



The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

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2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded,1.8m
3.	GNSS Station	R&S	SMBV100A	258305	N/A	N/A
4.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
5.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
6.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
7.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
8.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	Lenovo	V130-141K B001	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	SD Card	Kingston	8GB	N/A	N/A	N/A
11.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
12.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
13.	Hard disk	KINGSHARE	KSP6120G	Fcc DoC	Shielded, 1.2m	N/A

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2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Data application is transferred between notebook and EUT via USB cable.
- 2. Turn on camera to capture images.
- 3. Turn on NFC Function.
- 4. Turn on MPEG4 function.
- 5. Turn on FM function
- 6. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.

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3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

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.

<Class B Limit>

Frequency of emission	Conducted limit (dBuV)		
(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.

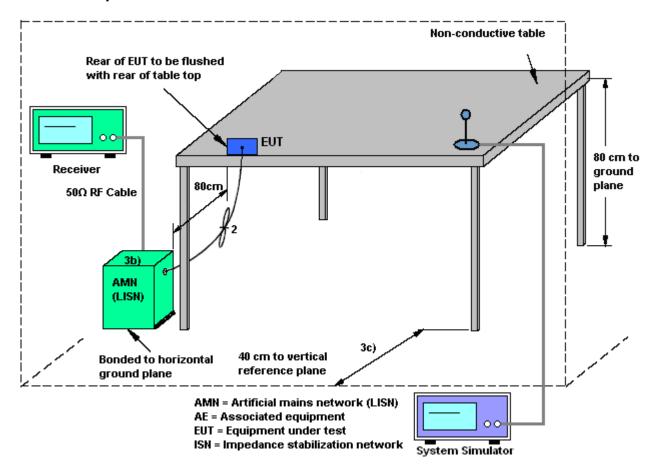
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room 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.
- 8. 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.

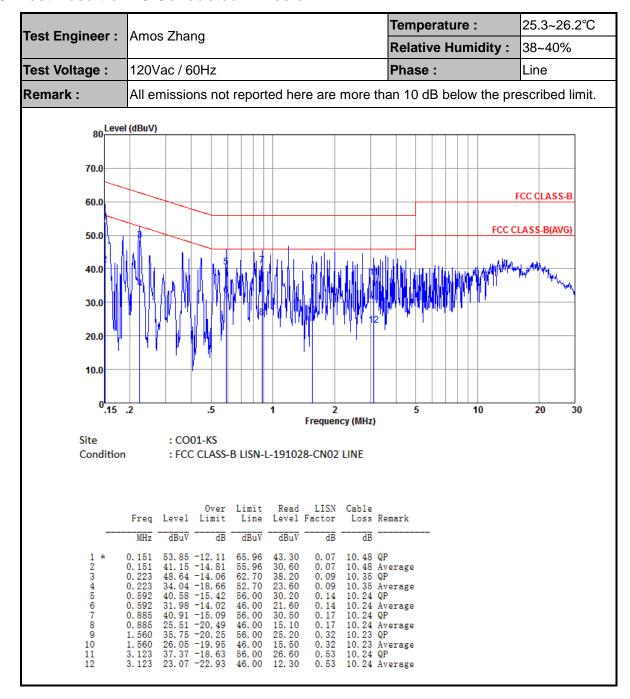
3.1.4 Test Setup



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3.1.5 Test Result of AC Conducted Emission



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25.3~26.2°C Temperature: Test Engineer: Amos Zhang **Relative Humidity:** 38~40% Test Voltage: 120Vac / 60Hz Phase: Neutral Remark: All emissions not reported here are more than 10 dB below the prescribed limit. 80 Level (dBuV) 70.0 FCC CLASS-B 60.0 FCC CLASS-B(AVG) 50.0 40.0 30.0 20.0 10.0 20 30 Frequency (MHz) Site Condition : FCC CLASS-B LISN-N-191028-CN02 NEUTRAL LISN Cable Over Limit Read Level Factor Loss Remark Line dBuV dBuV 60. 90 -4. 44 48. 80 -6. 54 49. 15 -15. 00 31. 65 -22. 50 50. 62 -11. 99 35. 42 -17. 19 51. 61 -9. 29 39. 71 -11. 19 47. 09 -11. 74 0. 15 0. 15 0. 16 0. 16 0. 18 0. 18 10.45 Average 10.39 QP 10.39 Aver 10.35 65. 34 55. 34 64. 15 54. 15 62. 61 52. 61 38. 20 38. 60 21. 10 40. 09 24. 89 41. 10 0. 162 0. 187 0. 187 0. 226 0. 226 10.35 10.35 Average 35. 42 -17. 19 51. 61 -9. 29 39. 71 -11. 19 47. 09 -11. 74 35. 99 -12. 84 43. 13 -12. 87 29. 13 -16. 87 43. 32 -12. 68 37. 02 -8. 98 0. 19 0. 19 0. 21 0. 21 0. 30 60. 90 50. 90 58. 83 29. 20 36. 60 25. 50 32. 60 0.277 10.32 Average 0.356 48. 83 56. 00 10 11 0.356 10.28 Average 10.23 QP 1.016 46. 00 56. 00 46. 00 18. 60 32. 60 26. 30 12 13 0.30 0.49 10. 23 Av 10. 23 QP 1.800

Note:

- 1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- 2. Over Limit(dB) = Level(dB μ V) Limit Line(dB μ V)

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3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B Limit>

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

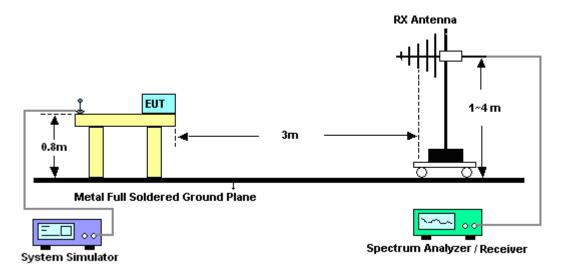
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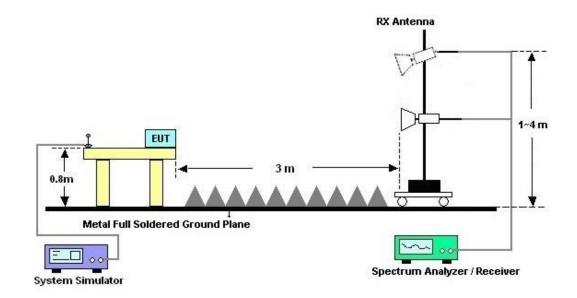
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3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

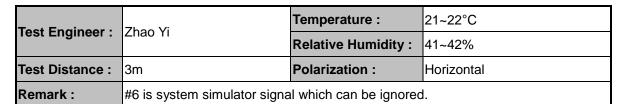


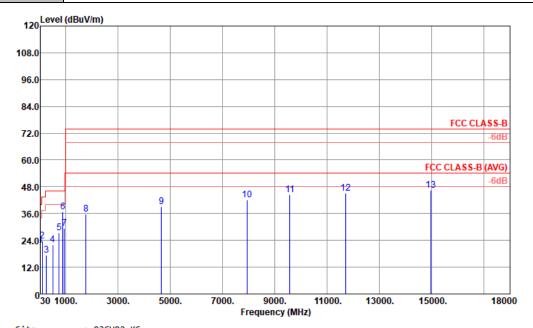
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3.2.5. Test Result of Radiated Emission





Site : 03CH02-KS Condition : FCC CLASS-B 3m LF 6111D SN44483 HORIZONTAL

			0ver					Preamp	A/Pos	T/Pos	
	Freq	Level	Limit	Line	Level	Factor	Loss	Factor			Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.97	21.81	-18.19	40.00	29.26	24.57	1.26	33.28			Peak
2	110.51	23.62	-19.88	43.50	37.31	17.05	2.38	33.12			Peak
3	260.86	17.37	-28.63	46.00	26.52	20.33	3.64	33.12			Peak
4	509.18	21.97	-24.03	46.00	25.44	24.25	5.08	32.80			Peak
5	744.89	27.40	-18.60	46.00	25.63	28.05	6.13	32.41			Peak
6	891.36	36.70			32.98	29.13	6.71	32.12			Peak
7	947.62	29.32	-16.68	46.00	23.48	30.93	6.91	32.00	100	0	Peak
8	1776.00	35.70	-38.30	74.00	26.22	30.62	7.97	29.11			Peak
9	4664.00	38.98	-35.02	74.00	17.51	35.50	13.18	27.21			Peak
10	7936.00	42.09	-31.91	74.00	15.17	37.42	17.39	27.89			Peak
11	9576.00	44.43	-29.57	74.00	13.57	39.23	19.21	27.58			Peak
12	11709.00	45.12	-28.88	74.00	10.83	39.85	21.62	27.18			Peak
13	14967.00	46.34	-27.66	74.00	6.55	41.16	24.53	25.90			Peak

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Report Template No.: BU5-FC15B Version 3.0

Report No. : FC070302

	71	Zhao Yi 3m #6 is system simulator signa				Temperature : Relative Humidity : Polarization :			21~	21~22°C 41~42% Vertical			
Test Engineer	: ∠nac								: 41~				
Test Distance	: 3m								Ver				
Remark :	#6 is					al which can be ignored.							
	ovel (dRuV	//m)											
120 ^L	evel (dBuV												
108.0													
96.0													
84.0													
72.0											FC	C CLASS-B -6dB	
60.0											FCC CLA	SS-B (AVG)	
48.0												13 -6dB	
ļr	6 8		9			10 	11			12		Ĭ	
36.0	5												
24.0	4												
12.0													
03	0 1000.	3000.	5	000.	7000.	90	00.	11000.	1300	0.	15000.	180	
						Frequen	cy (MHz))					
Site													
Condit		03CH02- FCC CLA		n LF 61	.11D SN4	14483 VE	RTICAL						
				n LF 61	.11D SN4	14483 VE	RTICAL						
				n LF 61	.11D SN4	14483 VE	RTICAL						
	ion :		SS-B 3m	Limit	Read <i>l</i>		Cable	Preamp Factor	A/Pos	T/Pos	Remark		
	ion :	FCC CLA	Over	Limit	Read <i>l</i>	Antenna Factor	Cable		A/Pos cm	T/Pos deg	Remark		
	Freq	Level	Over Limit dB	Limit Line dBuV/m	Read/ Level	Antenna Factor dB/m	Cable Loss	Factor dB		deg	Remark —		
Condit	Freq MHz 46.49 109.54	Level dBuV/m 33.53 22.22	Over Limit dB -6.47	Limit Line dBuV/m 40.00 43.50	Read/ Level dBuV 48.84 35.97	Antenna Factor dB/m 16.36 17.00	Cable Loss dB 1.53 2.37	33.20 33.12	cm 100	deg 0	QP Peak		
Condit - - 1 2 3	Freq MHz 46.49 109.54 211.39	Level dBuV/m 33.53 22.22 18.50	Over Limit dB -6.47 -21.28 -25.00	Limit Line dBuV/m 40.00 43.50 43.50	Read/ Level dBuV 48.84 35.97 33.20	Antenna Factor dB/m 16.36 17.00 15.21	Cable Loss dB 1.53 2.37 3.27	33.20 33.12 33.18	cm 100	deg 0 	QP Peak Peak		
Condit 1 2 3 4	Freq MHz 46.49 109.54 211.39 289.96	Level dBuV/m 33.53 22.22 18.50 18.87	Over Limit dB -6.47 -21.28 -25.00 -27.13	Limit Line dBuV/m 40.00 43.50 43.50 46.00	Read/ Level dBuV 48.84 35.97 33.20 29.01	Antenna Factor dB/m 16.36 17.00 15.21 19.20	Cable Loss dB 1.53 2.37 3.27 3.84	33.20 33.12 33.18 33.18	100 	deg 0 	QP Peak Peak Peak		
Condit 1 2 3 4 5	Freq MHz 46.49 109.54 211.39 289.96 580.96	Level dBuV/m 33.53 22.22 18.50 18.87 24.57	Over Limit dB -6.47 -21.28 -25.00 -27.13	Limit Line dBuV/m 40.00 43.50 43.50 46.00	Read/ Level dBuV 48.84 35.97 33.20 29.01 26.18	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65	Cable Loss dB 1.53 2.37 3.27 3.84 5.42	33.20 33.12 33.18 33.18 33.68	100 	deg 0 	QP Peak Peak Peak Peak		
Condit 1 2 3 4	Freq MHz 46.49 109.54 211.39 289.96 580.96	Level 33.53 22.22 18.50 18.87 24.57 36.54	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 48.84 35.97 33.20 29.01 26.18 32.82	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13	Cable Loss dB 1.53 2.37 3.27 3.84 5.42 6.71	33.20 33.12 33.18 33.18 32.68 32.12	100 	deg 0 	QP Peak Peak Peak		
Condit - 1 2 3 4 5 6	Freq MHz 46.49 109.54 211.39 289.96 580.96 891.36 935.98	Level 33.53 22.22 18.50 18.87 24.57 36.54	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 48.84 35.97 33.20 29.01 26.18 32.82 24.43	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13 30.48	Cable Loss dB 1.53 2.37 3.27 3.84 5.42	33.20 33.12 33.18 33.18 32.68 32.12 32.03	100 	deg 0 	QP Peak Peak Peak Peak Peak		
Condit 1 2 3 4 5 6 7	Freq MHz 46.49 109.54 211.39 289.96 580.96 580.96 935.98 1632.00	Level 33.53 22.22 18.50 18.87 24.57 36.54 29.75	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43 -16.25 -38.46	Limit Line 40.00 43.50 43.50 46.00 46.00 74.00	Read/ Level 48.84 35.97 33.20 29.01 26.18 32.82 24.43 27.56	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13 30.48	Cable Loss dB 1.53 2.37 3.27 3.84 5.42 6.71 6.87 7.65	33.20 33.12 33.18 33.18 32.68 32.12 32.03 29.06	100 	deg 0 	QP Peak Peak Peak Peak Peak Peak		
Condit 1 2 3 4 5 6 7 8	Freq MHz 46.49 109.54 211.39 289.96 580.96 891.36 935.98 1632.00 3888.00	Level 33.53 22.22 18.50 18.87 24.57 36.54 29.75 35.54	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43 -16.25 -38.46 -35.20	Limit Line 40.00 43.50 43.50 46.00 46.00 74.00 74.00	Read/ Level 48.84 35.97 33.20 29.01 26.18 32.82 24.43 27.56 19.15	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13 30.48 29.39	Cable Loss dB 1.53 2.37 3.27 3.84 5.42 6.71 6.87 7.65 11.98	33.20 33.12 33.18 33.18 32.68 32.12 32.03 29.06 27.40	100 	deg 0 	QP Peak Peak Peak Peak Peak Peak Peak		
Condit 1 2 3 4 5 6 7 8 9 10 11	Freq MHz 46.49 109.54 211.39 289.96 580.96 891.36 935.98 1632.00 3888.00 8104.00 9459.00	Level 33.53 22.22 18.50 18.87 24.57 36.54 29.75 35.54 38.80 41.67 43.72	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43 -16.25 -38.46 -35.20 -35.23 -30.28	Limit Line dBuV/m 40.00 43.50 46.00 46.00 74.00 74.00 74.00 74.00 74.00	Read/ Level dBuV 48.84 35.97 33.20 29.01 26.18 32.82 24.43 27.56 19.15 14.67 13.10	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13 30.48 29.39 35.07 37.34 39.18	Cable Loss dB 1.53 2.37 3.27 3.84 5.42 6.71 6.87 7.65 11.98 17.58 19.03	33.20 33.12 33.18 33.18 32.68 32.12 32.03 29.06 27.40 27.92 27.59	cm 100	deg 0 	QP Peak Peak Peak Peak Peak Peak Peak Pea		
Condit 1 2 3 4 5 6 7 8 9	Freq MHz 46.49 109.54 211.39 289.96 580.96 891.36 935.98 1632.00 3888.00 8104.00	Level 33.53 22.22 18.50 18.87 24.57 36.54 29.75 35.54 38.80 41.67 43.72 44.38	Over Limit dB -6.47 -21.28 -25.00 -27.13 -21.43 -16.25 -38.46 -35.20 -35.23 -30.28 -29.62	Limit Line 40.00 43.50 43.50 46.00 46.00 74.00 74.00 74.00 74.00 74.00 74.00	Read/ Level 48.84 35.97 33.20 29.01 26.18 32.82 24.43 27.56 19.15 14.67 14.67 15.51	Antenna Factor dB/m 16.36 17.00 15.21 19.20 25.65 29.13 30.48 29.39 35.07 37.34	Cable Loss 1.53 2.37 3.27 3.84 5.42 6.71 6.87 7.65 11.98 17.58 19.83 23.61	33.20 33.12 33.18 33.18 32.68 32.12 32.03 29.06 27.40 27.92 27.59 25.24	Cm 100	deg 0 	QP Peak Peak Peak Peak Peak Peak Peak Pea		

Note:

- 1. Level($dB\mu V/m$) = Read Level($dB\mu V$) + Antenna Factor(dB/m) + Cable Loss(dB) Preamp Factor(dB)
- 2. Over Limit(dB) = Level(dB μ V/m) Limit Line(dB μ V/m)

Sporton International (Kunshan) Inc.

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4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Ma x 30dBm	Oct. 18, 2019	Aug. 25, 2020	Oct. 17, 2020	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 18, 2019	Aug. 25, 2020	Oct. 17, 2020	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 30, 2019	Aug. 25, 2020	Dec. 29, 2020	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 10, 2019	Aug. 25, 2020	Nov. 09, 2020	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 02, 2020	Aug. 25, 2020	Jan. 01, 2021	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5G Hz	Oct. 18, 2019	Aug. 25, 2020	Oct. 17, 2020	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Aug. 25, 2020	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Aug. 25, 2020	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Aug. 25, 2020	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 14, 2020	Aug. 28, 2020	Apr. 13, 2021	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 18, 2019	Aug. 28, 2020	Oct. 17, 2020	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Oct. 28, 2019	Aug. 28, 2020	Oct. 27, 2020	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 18, 2019	Aug. 28, 2020	Oct. 17, 2020	Conduction (CO01-KS)

NCR: No Calibration Required

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5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence	2.9dB
of 95% (U = 2Uc(y))	2.90Б

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	4.9dB
of 95% (U = 2Uc(y))	4.906

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

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Measuring Uncertainty for a Level of Confidence	5.0dB
of 95% (U = 2Uc(y))	J.VUD

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