

FCC Test Report

APPLICANT	:	Bullitt Group
EQUIPMENT	:	Rugged Smart Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2083-9
FCC ID	:	ZL5MDFE
STANDARD	:	47 CFR Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Jan. 25, 2021 and testing was completed on Mar. 06, 2021. We, Sporton International (ShenZhen) 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 (ShenZhen) Inc., the test report shall not be reproduced except in full.

Dorque Cher

Reviewed by: Derreck Chen / Supervisor

File Shih

Approved by: Eric Shih / Manager



Sporton International (ShenZhen) Inc. 1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen, 518055 People's Republic of China



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APPENDIX A. SETUP PHOTOGRAPHS



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC112510	Rev. 01	Initial issue of report	Apr. 19, 2021



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	5.28 dB at
					0.160 MHz
					Under limit
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	11.09 dB at
					30.000 MHz

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.



1. General Description

1.1. Applicant

Bullitt Group

One Valpy Valpy Street, Reading, United Kingdom, RG1 1AR

1.2. Product Feature of Equipment Under Test

	Product Feature
Equipment	Rugged Smart Phone
Brand Name	Motorola
Model Name	XT2083-9
FCC ID	ZL5MDFE
EUT supports Radios application	GSM/WCDMA/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR / EDR / LE
IMEI Code	GNSS, FM Receiver Conduction: 355986990006935/355986990006943 Radiation: 355986990007230/355986990007248
EUT Stage	Production Unit

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

1.3. Product Specification of Equipment Under Test

Standards-related Product Specification				
Tx Frequency	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 38 : 2570 MHz ~ 2655 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz			
Rx Frequency	GSM850: 869 MHz ~ 894 MHz			

Sporton International (Shenzhen) Inc. TEL : 86-755-8637-9589 FAX : 86-755-8637-9595 FCC ID : ZL5MDFE Page Number: 5 of 21Report Issued Date: Apr. 19, 2021Report Version: Rev. 01Report Template No.: BU5-FD15B Version 3.0



GSM1900: 1930 MHz ~ 1990 MHz	
	WCDMA Band II: 1930 MHz ~ 1990 MHz
	WCDMA Band V: 869 MHz ~ 894 MHz
	LTE Band 2 : 1930 MHz ~ 1990 MHz
	LTE Band 5 : 869 MHz ~ 894 MHz
	LTE Band 7 : 2620 MHz ~ 2690 MHz
	LTE Band 26 : 859 MHz ~ 894 MHz
	LTE Band 38: 2570 MHz ~ 2620 MHz
	LTE Band 41 : 2535 MHz ~ 2655 MHz
	802.11b/g/n: 2400 MHz ~ 2483.5 MHz
	802.11a/n/ac: 5150 MHz ~ 5250 MHz;
	5250 MHz ~ 5350 MHz;
	5470 MHz ~ 5725 MHz
	5725 MHz ~ 5850 MHz
	Bluetooth: 2400 MHz ~ 2483.5 MHz
	NFC : 13.56 MHz
	GNSS : 1559 MHz ~ 1610 MHz
	FM : 88 MHz ~ 108 MHz
	WWAN : PIFA Antenna
	WLAN : PIFA Antenna
Antonno Tuno	Bluetooth : PIFA Antenna
Antenna Type	GNSS: PIFA Antenna
	NFC : LOOP Antenna
	FM : External Earphone Antenna
	GSM/GPRS: GMSK
	EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK
	WCDMA : BPSK (Uplink)
	HSDPA/DC-HSDPA : QPSK (Uplink)
	HSUPA : QPSK (Uplink)
	HSPA+ : 16QAM (16QAM uplink is not supported)
	DC-HSDPA : 64QAM
Type of Modulation	LTE: QPSK / 16QAM / 64QAM
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK)
	802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM /
	256QAM)
	Bluetooth LE : GFSK
	Bluetooth (1Mbps) : GFSK
	Bluetooth (2Mbps) :π/4-DQPSK
	Bluetooth (3Mbps) : 8-DPSK
	GNSS : BPSK
	NFC: ASK

1.4. Modification of EUT

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

1.5. Specification of Accessory

Specification of Accessory				
AC Adapter(US)	Brand Name	Motorola (Chenyang)	Model Name	MC-201

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Battery	Brand Name	Motorola (Sunwoda)	Model Name	JK50
Earphone	Brand Name	Motorola (Juwei)	Model Name	JWEP1123-T03
USB Cable	Brand Name	Motorola (Yihuaxing)	Model Name	T365-008

1.6. Test Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.				
	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan,				
Test Site Location	Shenzhen, 518055 Peop	le's Rep	oublic of China		
	TEL: +86-755-86379589				
	FAX: +86-755-86379595				
	On and an Olita Na	500		FCC Test Firm	
Test Site No.	Sporton Site No.	FCC	Designation No.	Registration No.	
	CO01-SZ	CN1256		421272	
Test Firm	Sporton International (Shenzhen) Inc.				
	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang				
Test Offe Lessting	Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province				
Test Site Location	China 518103				
	TEL: +86-755-33202398				
	Sporton Sito No		FCC Designatio	n FCC Test Firm	
Test Site No.	Sporton Site No.		No.	Registration No.	

1.7. Test Software

ltem	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b



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
- ANSI C63.4a-2017

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



2. Test Configuration of Equipment Under Test

2.1. Test Mode

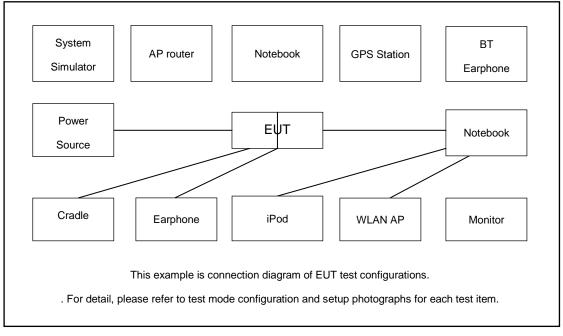
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
	Mode 1: GSM 850 Idle(Middle CH) + USB Cable (Charging from Adapter) + Earphone + Battery + Camera(Rear) + SD Card Load + SIM 1
	Mode 2: WCDMA FDD V Idle(High CH) + USB Cable (Charging from Adapter) + Earphone + Battery + Camera(Front) + SD Card Load + SIM 2
AC Conducted Emission	Mode 3: LTE Band 5 Idle(Low CH) + USB Cable (Charging from Adapter) + Earphone + Battery + MPEG4(Colur bar) + SD Card Link + SIM 1
	Mode 4: LTE Band 26 Idle(Middle CH) + USB Cable (Charging from Adapter) + Earphone + Battery + FM Rx(98MHz) + SD Card Load + SIM 2
	Mode 5: LTE Band 7 Idle(High CH) + USB Cable(Data Link with Notebook) + Earphone + Battery + H-Pattern + SD Card Link + SIM 1
	Mode 1: GSM 850 Idle(Middle CH) + USB Cable (Charging from Adapter) + Earphone + Battery + Camera(Rear) + SD Card Load + SIM 1
	Mode 2: WCDMA FDD V Idle(High CH) + USB Cable (Charging from Adapter) + Earphone + Battery + Camera(Front) + SD Card Load + SIM 2
Radiated Emissions	Mode 3: LTE Band 5 Idle(Low CH) + USB Cable (Charging from Adapter) + Earphone + Battery + MPEG4(Colur bar) + SD Card Link + SIM 1
	Mode 4: LTE Band 26 Idle(Middle CH) + USB Cable (Charging from Adapter) + Earphone + Battery + FM Rx(98MHz) + SD Card Load + SIM 2
	Mode 5: LTE Band 7 Idle(High CH) + USB Cable(Data Link with Notebook) + Earphone + Battery + H-Pattern + SD Card Link + SIM 1
Remark:	1

- **1.** The worst case of AC is mode 5; only the test data of this mode is reported.
- 2. The worst case of RE is mode 2; 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 for GSM 850/WCDMA Band V/LTE Band 5/7/26, the worst channel was recorded in this report.



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

2.3. Support Unit used in test configuration and system

ltem	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Shielded, 1.5m
2.	FM Station	R&S	SMB100A	N/A	N/A	Unshielded,1.8m
3.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
4.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,2.7m
4.		ASUSTER	RT-AC000	MSQ-R IAC000	IN/A	with Core
5.	NOTE BOOK	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	lpod	apple	N/A	MC69029/A	N/A	N/A
7.	SD Card	N/A	MicroSD HC	FCC DoC	N/A	N/A
8.	SD Card	Kingston	3300-10000-078	Fcc DoC	N/A	N/A



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 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 MPEG4 function.
- 3. Turn on camera to capture images.
- 4. Execute "H Pattern" to show H Pattern on the screen.
- 5. Turn on FM receiver function to make the EUT receive continuous signals from FM station.



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

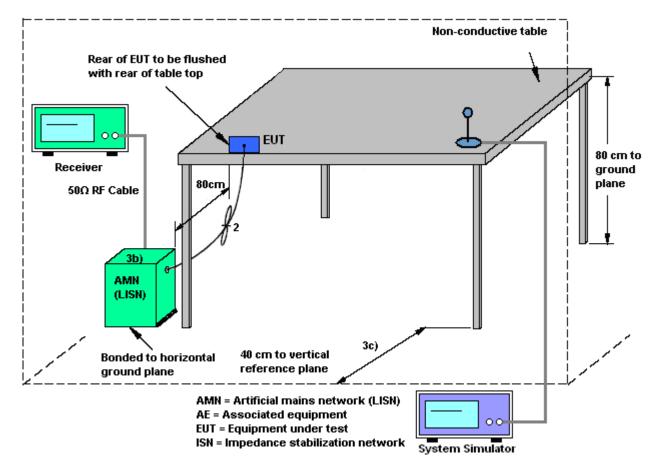
The measuring equipment is listed in the section 4 of this test report.

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.
- 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

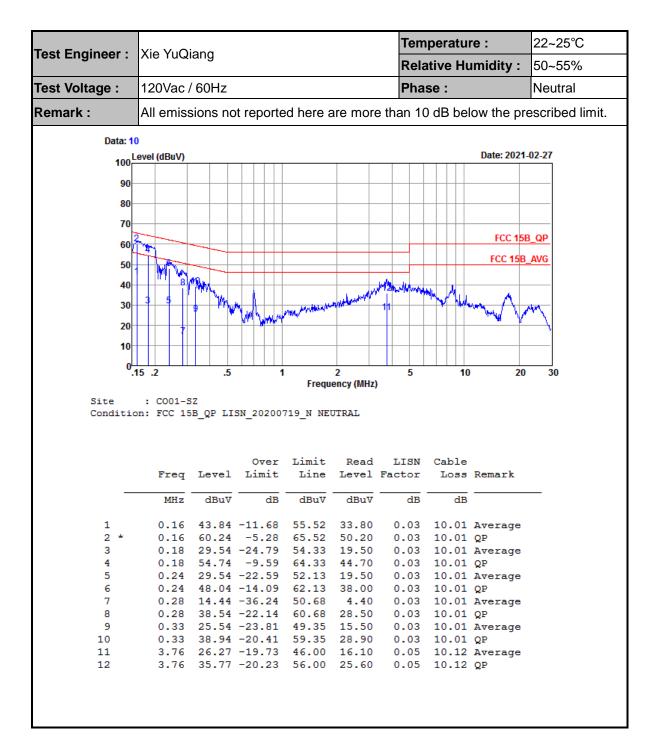




Temperature : 22~25℃ Test Engineer : Xie YuQiang **Relative Humidity :** 50~55% Test Voltage : Phase : 120Vac / 60Hz Line Remark : All emissions not reported here are more than 10 dB below the prescribed limit. 100 Level (dBuV) Date: 2021-02-27 90 80 70 FCC 15B_QP 60 FCC 15B_AVG 50 40 30 20 10 .15 .2 .5 1 2 5 10 20 30 Frequency (MHz) Site : CO01-SZ Condition: FCC 15B QP LISN 20200719 L LINE Over Limit Read LISN Cable Freq Level Limit Line Level Factor Loss Remark dB dBuV MHz dBuV dBuV dB dB 1 0.16 43.24 -12.32 55.56 33.20 0.03 10.01 Average 58.94 -6.62 65.56 48.90 31.64 -22.73 54.37 21.60 2 4 0.03 10.01 QP 0.16 0.03 10.01 Average 3 0.18 4 0.18 52.64 -11.73 64.37 42.60 0.03 10.01 QP 32.04-20.1352.1722.0047.44-14.7362.1737.40 5 0.24 0.03 10.01 Average 0.03 10.01 QP 6 0.24 7 0.27 20.44 -30.68 51.12 10.40 0.03 10.01 Average 0.27 41.84 -19.28 61.12 31.80 0.29 18.04 -32.37 50.41 8.00 0.03 10.01 QP 0.03 10.01 Average 8 9 0.29 38.94 -21.47 60.41 28.90 0.03 10.01 QP 10 3.8226.70-19.3046.0016.413.8235.80-20.2056.0025.51 11 0.17 10.12 Average 12 0.17 10.12 QP

3.1.5 Test Result of AC Conducted Emission





Note:

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



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.

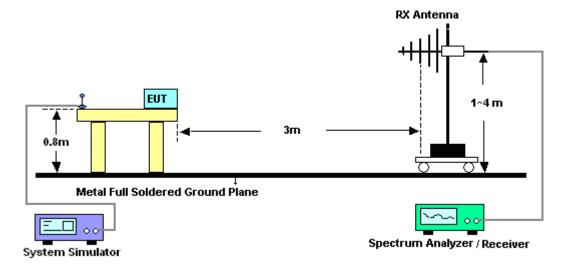
3.2.3. Test Procedures

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

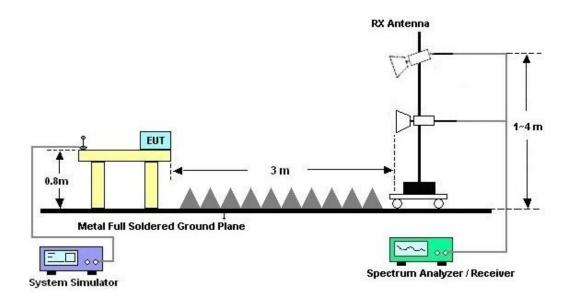


3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

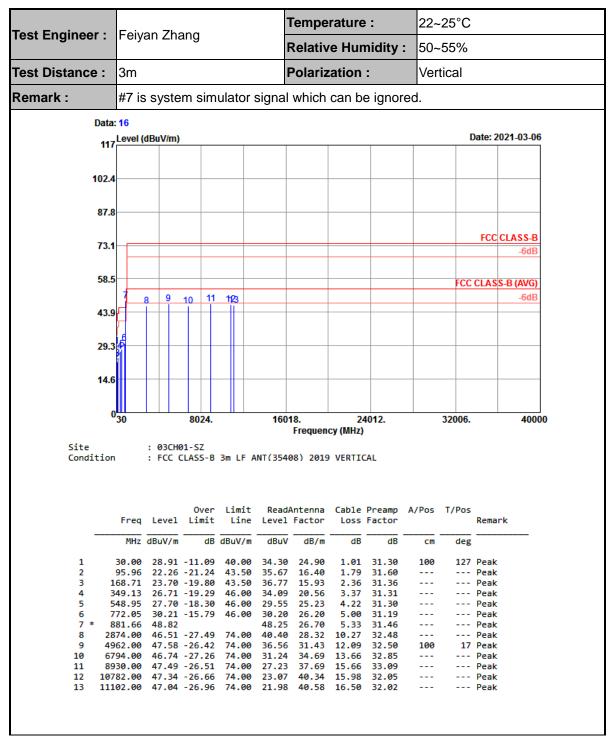




3.2.5. Test Result of Radiated Emission

loot Engineer	Faire	n 76.	200		-	Гетре	rature):	22~	25°C		
fest Engineer :	reiyan zhang				F	Relative Humidity : Polarization :			: 50~	50~55% Horizontal		
Fest Distance :	3m				I				Hor			
Remark :	#7 is system simulator signal which can be ignored.											
Data	: 15											
117	Level (di	BuV/m)								[Date: 202	21-03-07
102.4	ļ	_										
87.8												
07.0												
73.1											FCC C	LASS-B -6dB
58.5		_								FCC	CLASS-	
43.9		9	10 11	12								-6dB
1010												
29.3												
	Þ											
14.6	5											
() 30											
	30		8024.		160 ⁴		24	4012.		32006.		4000
						Frequen	cy (MHz)					
Site		03CH		2								
Site Condition				3m LF_A	NT (354)	Frequen 08)_2019						
				3m LF_A	NT (354)							
	ı :	FCC (CLASS-B	Limit	Read	08)_2019 Antenna	HORIZ	Preamp	A/Pos	T/Pos	Pomonik	
	Freq	FCC (Over Limit	Limit Line	Read/ Level	08)_2019 Antenna Factor	HORIZ Cable Loss	DNTAL Preamp Factor			Remark	c
Condition	Freq MHz	FCC (Level	Over Limit dB	Limit Line dBuV/m	Read/ Level dBuV	Antenna Factor dB/m	Cable Loss dB	Preamp Factor dB	cm	deg		c
Condition 1 2	Freq MHz d 30.00 98.87	FCC (Level BuV/m 24.75 25.44	Over Limit -15.25 -18.06	Limit Line dBuV/m 40.00 43.50	Read/ Level dBuV 30.14 38.32	Antenna Factor dB/m 24.90 16.90	Cable Loss dB 1.01 1.82	Preamp Factor dB 31.30 31.60	cm 100	deg 75	Peak Peak	¢
Condition 1 2 3 1	Freq MHz d 30.00 98.87 52.22	FCC (Level BuV/m 24.75 25.44 22.12	Over Limit 	Limit Line dBuV/m 40.00 43.50 43.50	Read/ Level dBuV 30.14 38.32 34.59	Antenna Factor dB/m 24.90 16.90 16.68	Cable Loss dB 1.01 1.82 2.24	Preamp Factor dB 31.30 31.60 31.39	cm 100 	deg 75 	Peak Peak Peak	c
Condition 1 2 3 1 4 3	Freq MHz d 30.00 98.87 52.22 48.16	FCC (Level BuV/m 24.75 25.44 22.12 26.35	Over Limit 	Limit Line dBuV/m 40.00 43.50 43.50 46.00	Read/ Level dBuV 30.14 38.32 34.59 33.78	Antenna Factor dB/m 24.90 16.90 16.68	Cable Loss dB 1.01 1.82 2.24 3.36	DNTAL Preamp Factor dB 31.30 31.60 31.39 31.31	cm 100	deg 75 	Peak Peak	c
Condition 1 2 3 1 4 3 5 5 5 5 6 7	Freq MHz d 30.00 98.87 52.22 448.16 53.80 '25.49	FCC (Level 18uV/m 24.75 25.44 22.12 26.35 27.77 29.67	Over Limit 	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 30.14 38.32 34.59 33.78 29.63 30.53	Antenna Factor dB/m 24.90 16.90 16.68 20.52 25.22 25.70	Cable Loss dB 1.01 1.82 2.24 3.36 4.24 4.84	Preamp Factor dB 31.30 31.60 31.31 31.32 31.40	cm 100 	deg 75 	Peak Peak Peak Peak Peak Peak Peak	c
Condition 1 2 3 1 4 3 5 5 5 7 7 * 8	Freq MHz d 30.00 98.87 52.22 448.16 553.80 881.66	FCC (Level BuV/m 24.75 25.44 22.12 26.35 27.77 29.67 49.97	Over Limit -15.25 -18.06 -21.38 -19.65 -18.23 -16.33	Limit Line 40.00 43.50 43.50 46.00 46.00 46.00	Read/ Level dBuV 30.14 38.32 34.59 33.78 29.63 30.53 49.40	Antenna Factor dB/m 24.90 16.90 16.68 20.52 25.70 25.70 26.70	Cable Loss dB 1.01 1.82 2.24 3.36 4.24 4.84 5.33	Preamp Factor dB 31.30 31.60 31.31 31.32 31.40 31.46	cm 100 	deg 75 	Peak Peak Peak Peak Peak Peak Peak	<
Condition 1 2 3 1 4 3 5 5 6 7 7 * 8 8 28	Freq MHz d 30.00 98.87 52.22 48.16 53.80 (25.49 81.66 362.00	FCC (Level BuV/m 24.75 25.44 22.12 26.35 27.77 29.67 49.97 46.74	Over Limit -15.25 -18.06 -21.38 -19.65 -18.23 -16.33 -27.26	Limit Line 40.00 43.50 43.50 46.00 46.00 46.00 74.00	Read/ Level 30.14 38.32 34.59 33.78 29.63 30.53 49.40 40.66	Antenna Factor dB/m 24.90 16.90 16.68 20.52 25.22 25.70	Cable Loss dB 1.01 1.82 2.24 3.36 4.24 4.84 5.33 10.26	Preamp Factor dB 31.30 31.30 31.31 31.32 31.40 31.46 32.48	cm 100 	deg 75 	Peak Peak Peak Peak Peak Peak Peak	c
Condition 1 2 3 1 4 3 5 5 6 7 7 8 28 8 28 9 47 10 69	Freq MHz d 30.00 98.87 .52.22 .53.80 (25.49 81.66 .62.00 .78.00	FCC (Level BuV/m 24.75 25.44 22.12 26.35 27.77 29.67 49.97 46.74 46.74	Over Limit 	Limit Line 40.00 43.50 43.50 46.00 46.00 46.00 74.00 74.00 74.00	Read/ Level dBuV 30.14 38.32 34.59 33.78 29.63 30.53 49.40 40.66 35.77 30.34	Antenna Factor dB/m 24.90 16.69 16.68 20.52 25.22 25.22 25.20 26.70 28.30 30.97 35.06	Cable Loss dB 1.01 1.82 2.24 3.36 4.24 4.84 5.33 10.26 11.95 13.95	Preamp Factor dB 31.30 31.60 31.31 31.32 31.40 31.40 31.46 32.48 32.50 33.07	cm 100 	deg 75 	Peak Peak Peak Peak Peak Peak Peak Peak	c
Condition 1 2 3 1 4 3 5 5 5 5 6 7 7 * 8 8 28 9 47 10 69 11 89 11 89 11 1 1 1 1 1 1 1 1 1 1 1 1	Freq MHz d 30.00 98.87 52.22 448.16 53.80 81.66 62.00 704.00 778.00 32.00	FCC (Level IBuV/m 24.75 25.44 22.12 26.35 27.77 29.67 49.97 46.74 46.19 46.28 46.34	Over Limit dB -15.25 -18.06 -21.38 -19.65 -18.23 -16.33 -27.26 -27.21 -27.72 -27.66	Limit Line 40.00 43.50 43.50 46.00 46.00 74.00 74.00 74.00 74.00	Read/ Level dBuV 30.14 38.32 34.59 33.78 29.63 30.53 49.40 40.66 35.77 30.34 26.08	Antenna Factor dB/m 24.90 16.90 16.90 25.22 25.22 25.70 26.70 28.30 30.97	Cable Loss dB 1.01 1.82 2.24 3.36 4.24 4.84 5.33 10.26 11.95 13.95 15.66	Preamp Factor dB 31.30 31.60 31.31 31.32 31.40 31.46 32.48 32.50 33.07 33.09	cm 100 	deg 75 	Peak Peak Peak Peak Peak Peak Peak Peak	c





Note:

- Level(dBµV/m) = Read Level(dBµV) + 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)



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Jul. 21, 2020	Mar. 06, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 21, 2020	Mar. 06, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270104	0.5GHz~26.5Gh z	Dec. 27, 2020	Mar. 06, 2021	Dec. 26, 2021	Radiation (03CH01-SZ
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 15, 2020	Mar. 06, 2021	Jul. 14, 2021	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2020	Mar. 06, 2021	Jul. 24, 2021	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 17, 2020	Mar. 06, 2021	Apr. 16, 2021	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P- R	1943528	1GHz~18GHz	Oct. 17,2020	Mar. 06, 2021	Oct. 16,2021	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-H G	1871923	18GHz~40GHz	Jul. 21, 2020	Mar. 06, 2021	Jul. 20, 2021	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 23, 2020	Mar. 06, 2021	Apr. 22, 2021	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Mar. 06, 2021	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Mar. 06, 2021	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Mar. 06, 2021	NCR	Radiation (03CH01-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 25, 2020	Feb. 27, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2 LISN	00103912	9kHz~30MHz	Dec. 25, 2020	Feb. 27, 2021	Dec 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 15, 2020	Feb. 27, 2021	Oct. 14, 2021	Conduction (CO01-SZ)

NCR: No Calibration Required



5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence	2.7dB
of 95% (U = 2Uc(y))	2.708

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

Measuring Uncertainty for a Level of Confidence	4.7dB
of 95% (U = 2Uc(y))	4.708

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

Measuring Uncertainty for a Level of Confidence	5.0dB
of 95% (U = 2Uc(y))	3.00B