

TEST REPORT

FCC ID: 2AQ4G-LY-S-10

Product: Tablet PC

Model No.: LY-S-10

Additional Model No.: LY-SD-10, LY-SD-11, LY-SD-12, LY-SD-13, LY-S-11,

LY-S-12, LY-S-13

Trade Mark: Seago

Report No.: TCT200831E044

Issued Date: Sep. 24, 2020

Issued for:

Shenzhen Link Win Technology Co., Ltd
9F, Zhengqilong Industrial Building 1st, Rd Gushu, Xixiang, Bao'an,
Shenzhen, China

Issued By:

Shenzhen Tongce Testing Lab.

1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

FAX: +86-755-27673332

Note: This report shall not be reproduced except in full, without the written approval of Shenzhen Tongce Testing Lab.

This document may be altered or revised by Shenzhen Tongce Testing Lab. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

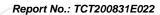




TABLE OF CONTENTS

1.	Test Certification	
2.	Test Result Summary	4
3.	EUT Description	5
4.	General Information	6
	4.1. Test environment and mode	
	4.2. Description of Support Units	6
5.	Facilities and Accreditations	7
	5.1. Facilities	7
	5.2. Location	7
	5.3. Measurement Uncertainty	7
6.	Test Results and Measurement Data	
	6.1. Antenna requirement	8
	6.2. Conducted Emission	9
	6.3. Conducted Output Power	13
	6.4. Emission Bandwidth	16
	6.5. Power Spectral Density	
	6.6. Test Specification	19
	6.7. Conducted Band Edge and Spurious Emission Measurement	
	6.8. Radiated Spurious Emission Measurement	25
Α	ppendix A: Photographs of Test Setup	
Α	ppendix B: Photographs of EUT	



TESTING CENTRE TECHNOLOGY Report No.: TCT200831E022

1. Test Certification

Product:	Tablet PC				
Model No.:	LY-S-10				
Additional Model No.:	LY-SD-10, LY-SD-11, LY-SD-12, LY-SD-13, LY-S-11, LY-S-12, LY-S-13				
Trade Mark:	Seago				
Applicant:	Shenzhen Link Win Technology Co., Ltd				
Address:	9F, Zhengqilong Industrial Building 1st, Rd Gushu, Xixiang, Bao'an, Shenzhen, China				
Manufacturer:	Shenzhen Link Win Technology Co., Ltd				
Address:	9F, Zhengqilong Industrial Building 1st, Rd Gushu, Xixiang, Bao'an, Shenzhen, China				
Date of Test:	Sep. 01, 2020 – Sep. 23, 2020				
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013				

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Byand, Leng.

Date:

Sep. 23, 2020

_

Reviewed By:

Date:

Sep. 24, 2020

Approved By:

Tomsin

Brave Zeng

Date:

Sep. 24, 2020



2. Test Result Summary

Requirement	CFR 47 Section	Result		
Antenna requirement	§15.203/§15.247 (c)	PASS		
AC Power Line Conducted Emission	§15.207	PASS		
Conducted Peak Output Power	§15.247 (b)(3)	PASS		
6dB Emission Bandwidth	§15.247 (a)(2)	PASS		
Power Spectral Density	§15.247 (e)	PASS		
Band Edge	§15.247(d)	PASS		
Spurious Emission	§15.205/§15.209	PASS		

Note:

- 1. PASS: Test item meets the requirement.
- 2. Fail: Test item does not meet the requirement.
- 3. N/A: Test case does not apply to the test object.
- 4. The test result judgment is decided by the limit of test standard.

Page 4 of 36





3. EUT Description

Product:	Tablet PC				
Model No.:	LY-S-10				
Additional Model No.:	LY-SD-10, LY-SD-11, LY-SD-12, LY-SD-13, LY-S-11, LY-S-12, LY-S-13				
Trade Mark:	Seago				
Bluetooth Version:	V4.2 (This report is for BLE)				
Operation Frequency:	2402MHz~2480MHz				
Channel Separation:	2MHz				
Number of Channel:	40				
Modulation Type:	GFSK				
Antenna Type:	FPC Antenna				
Antenna Gain:	1.2dBi				
Power Supply:	Rechargeable Li-ion Battery DC 3.7V				
AC adapter:	Adapter Information: MODEL: PMC45 INPUT: AC 100-240V, 50/60Hz, 0.2A OUTPUT: DC 5V, 2A				
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.				

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

Operation Frequency each of channel

Operation i requestcy each or chainles										
Channel Frequen		Channel	Frequency	Channel	Frequency	Channel	Frequency			
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz			
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz			
	(<u>, O`)</u>			G `).)			
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz			
9 2420MHz 19 2440MHz 29 2460MHz 39 2480M										
Remark: Channel 0, 19 & 39 have been tested.										





4. General Information

4.1. Test environment and mode

Operating Environment:						
Condition	Conducted Emission	Radiated Emission				
Temperature:	25.0 °C	25.0 °C				
Humidity:	55 % RH	55 % RH				
Atmospheric Pressure:	1010 mbar	1010 mbar				
Test Mode:						
Engineering mode: Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery						

The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
1	1	1	1	1

Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

Page 6 of 36



5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District,

Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

Page 7 of 36



6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement: FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

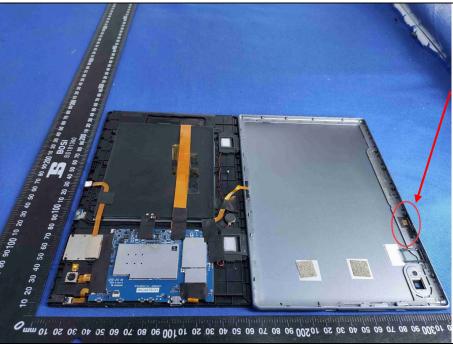
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The Bluetooth antenna is FPC antenna which permanently attached, and the best case gain of the antenna is 1.2dBi.



Page 8 of 36

Antenna



6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section	15.207	$\langle C \rangle$				
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz						
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto						
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (c Quasi-peak 66 to 56* 56 60	dBuV) Average 56 to 46* 46 50				
Test Setup:	Referer 40cm L.U.T Adap Test table/Insulation plan Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Test table height=0.8m	EMI Receiver	ter — AC power				
Test Mode:	Charging + Transmittin	g Mode)				
Test Procedure:	 The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 						
Test Result:	PASS						



6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)										
Equipment	Manufacturer	Model	Serial Number	Calibration Due						
Test Receiver	R&S	ESPI	101402	Jul. 27, 2021						
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2021						
Coax cable (9KHz-30MHz)	ТСТ	CE-05	N/A	Sep. 02, 2021						
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A						

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



Hotline: 400-6611-140

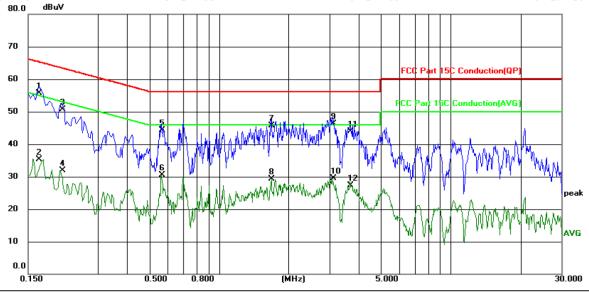


6.2.3. Test data

Report No.: TCT200831E022

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site Phase: L1 Temperature: 25 (C)
Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBu∀	dB	dBu∀	dBuV	dB	Detector	Comment
1	*	0.1660	45.41	10.22	55.63	65.16	-9.53	QP	
2		0.1660	25.06	10.22	35.28	55.16	-19.88	AVG	
3		0.2100	40.39	10.23	50.62	63.21	-12.59	QP	
4		0.2100	21.76	10.23	31.99	53.21	-21.22	AVG	
5		0.5660	34.11	10.23	44.34	56.00	-11.66	QP	
6		0.5660	20.36	10.23	30.59	46.00	-15.41	AVG	
7		1.6820	35.21	10.42	45.63	56.00	-10.37	QP	
8		1.6820	18.91	10.42	29.33	46.00	-16.67	AVG	
9		3.1020	35.86	10.47	46.33	56.00	-9.67	QP	
10		3.1020	18.94	10.47	29.41	46.00	-16.59	AVG	
11		3.6740	33.47	10.47	43.94	56.00	-12.06	QP	
12		3.6740	16.74	10.47	27.21	46.00	-18.79	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)

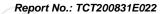
 $Limit (dB\mu V) = Limit stated in standard$

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak

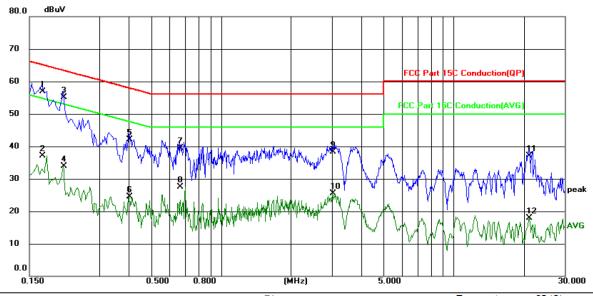
AVG =average

^{*} is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz





Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site Phase: N Temperature: 25 (C)
Limit: FCC Part 15C Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	100	
		MHz	dBu√	dB	dBu∀	dBu∨	dB	Detector	Comment
1	*	0.1700	46.76	10.12	56.88	64.96	-8.08	QP	
2		0.1700	27.05	10.12	37.17	54.96	-17.79	AVG	
3		0.2100	44.88	10.13	55.01	63.21	-8.20	QP	
4		0.2100	23.83	10.13	33.96	53.21	-19.25	AVG	
5		0.4020	31.88	10.13	42.01	57.81	-15.80	QP	
6		0.4020	14.31	10.13	24.44	47.81	-23.37	AVG	
7		0.6660	29.31	10.12	39.43	56.00	-16.57	QP	
8		0.6660	17.36	10.12	27.48	46.00	-18.52	AVG	
9	1	3.0100	28.11	10.12	38.23	56.00	-17.77	QP	
10		3.0100	15.33	10.12	25.45	46.00	-20.55	AVG	,
11	į	21.1340	26.89	10.21	37.10	60.00	-22.90	QP	
12		21.1340	7.79	10.21	18.00	50.00	-32.00	AVG	

Note1:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak

AVG =average

Page 12 of 36

^{*} is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.



6.3. Conducted Output Power

6.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 v05r02
Limit:	30dBm
Test Setup:	Soundary Analysis EUT
Test Mode:	Refer to item 4.1
Test Procedure:	Set spectrum analyzer as following: a) Set the RBW ≥ DTS bandwidth. b) Set VBW ≥ 3 × RBW. c) Set span ≥ 3 x RBW d) Sweep time = auto couple. e) Detector = peak. f) Trace mode = max hold. g) Allow trace to fully stabilize. h) Use peak marker function to determine the peak amplitude level.
Test Result:	PASS

6.3.2. Test Instruments

Equipment	Manufacturer	Model Serial Number		Model Serial Number Ca		Calibration Due
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2021		
RF cable (9kHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021		
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021		

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

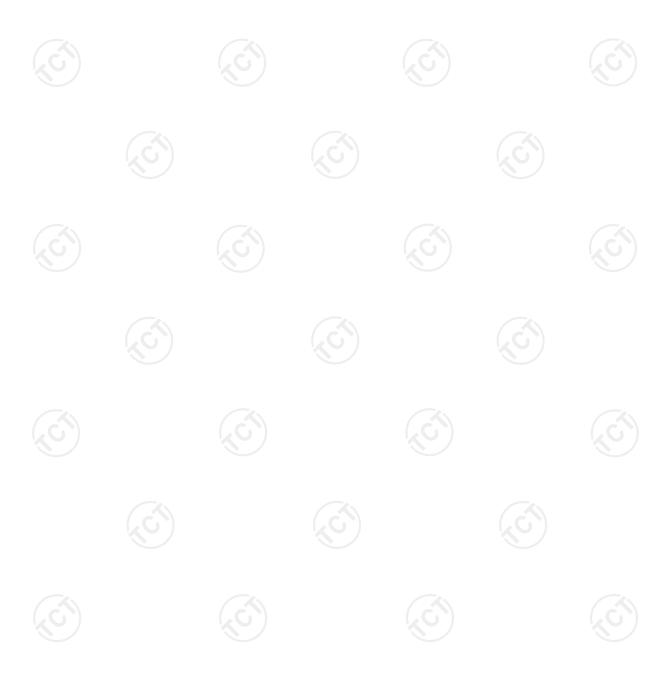
Page 13 of 36



6.3.3. Test Data

BT LE mode			
Test channel	Maximum Conducted Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.14	30.00	PASS
Middle	-0.10	30.00	PASS
Highest	-1.71	30.00	PASS

Test plots as follows:

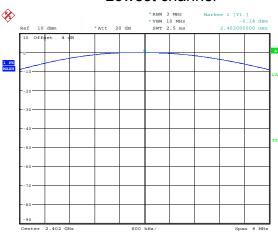


Page 14 of 36



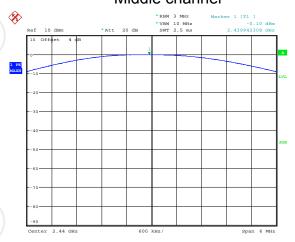
BT LE mode

Lowest channel



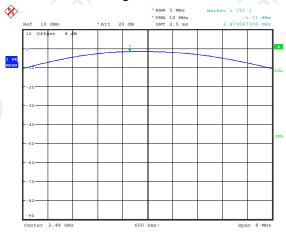
Date: 9.SEP.2020 14:33:35

Middle channel



Date: 9.SEP.2020 14:33:5

Highest channel



Date: 9.SEP.2020 14:34:04



6.4. Emission Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)				
Test Method:	KDB 558074 D01 v05r02				
Limit:	>500kHz				
Test Setup:	Spectrum Analyzer EUT				
Test Mode:	Refer to item 4.1				
Test Procedure:	 Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. Measure and record the results in the test report. 				
Test Result:	PASS				

6.4.2. Test Instruments

RF Test Room						
Equipment Manufacturer Model Serial Number Calibration						
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2021		
RF cable (9kHz-26.5GHz)	тст	RE-06	N/A	Sep. 11, 2021		
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021		

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

Page 16 of 36

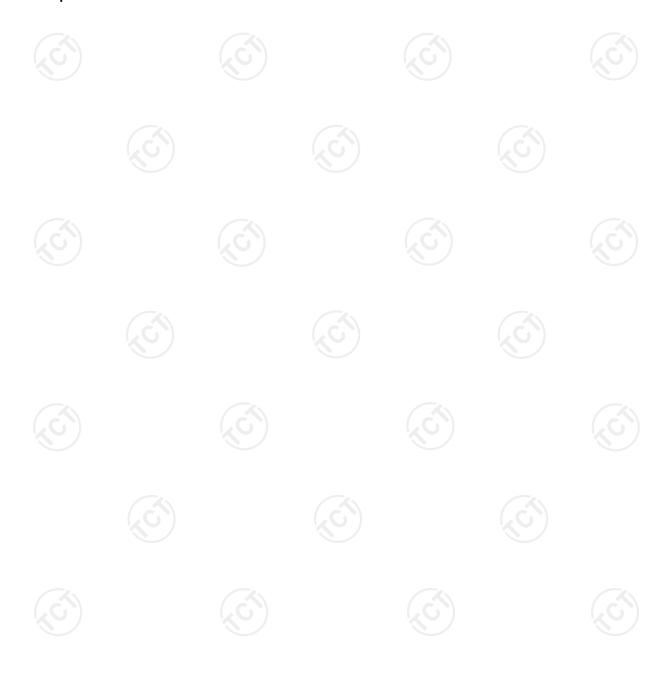




6.4.3. Test data

Toot channel	6dB Emission Bandwidth (kHz)			
Test channel	BT LE mode	Limit	Result	
Lowest	516.03	>500k		
Middle	525.64	>500k	PASS	
Highest	519.23	>500k		

Test plots as follows:

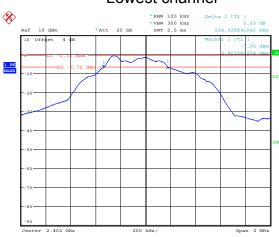


Page 17 of 36



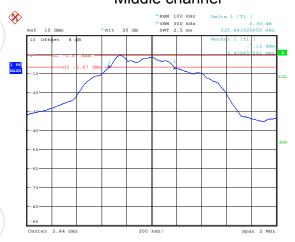
BT LE mode

Lowest channel



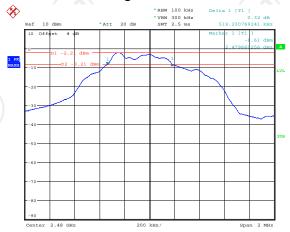
Date: 9.SEP.2020 14:36:20

Middle channel



Date: 9.SEP.2020 14:37:02

Highest channel



Date: 9.SEP.2020 14:37:36



6.5. Power Spectral Density

6.6. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)				
Test Method:	KDB 558074 D01 v05r02				
Limit:	The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.				
Test Setup:					
	Spectrum Analyzer EUT				
Test Mode:	Refer to item 4.1				
Test Procedure:	 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW) Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level. Measure and record the results in the test report. 				
Test Result:	PASS				

6.6.1. Test Instruments

RF Test Room						
Equipment Manufacturer Model Serial Number Calibr						
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2021		
RF cable (9kHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021		
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021		

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



6.6.2. Test data

TCT通测检测
TESTING CENTRE TECHNOLOGY

Toot shannal	Power Spectral Density (dBm/3kHz)			
Test channel	Limit	Result		
Lowest	-17.64	8 dBm/3kHz	(0)	
Middle	-17.61	8 dBm/3kHz	PASS	
Highest	-19.12	8 dBm/3kHz		

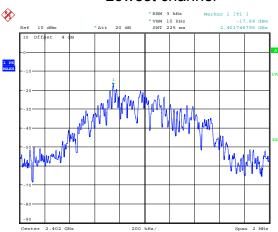
Test plots as follows:



Page 20 of 36

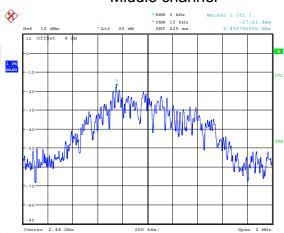


Lowest channel



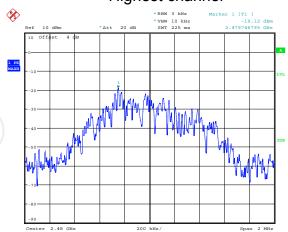
Date: 9.SEP.2020 14:38:10

Middle channel



Date: 9.SEP.2020 14:38:25

Highest channel



Date: 9.SEP.2020 14:38:4



6.7. Conducted Band Edge and Spurious Emission Measurement

6.7.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)					
Test Method:	KDB 558074 D01 v05r02					
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).					
Test Setup:	EUT EUT					
Teet Mede.	Refer to item 4.1					
Test Mode:						
Test Procedure:	 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). Measure and record the results in the test report. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 					
Test Result:	PASS					

Page 22 of 36

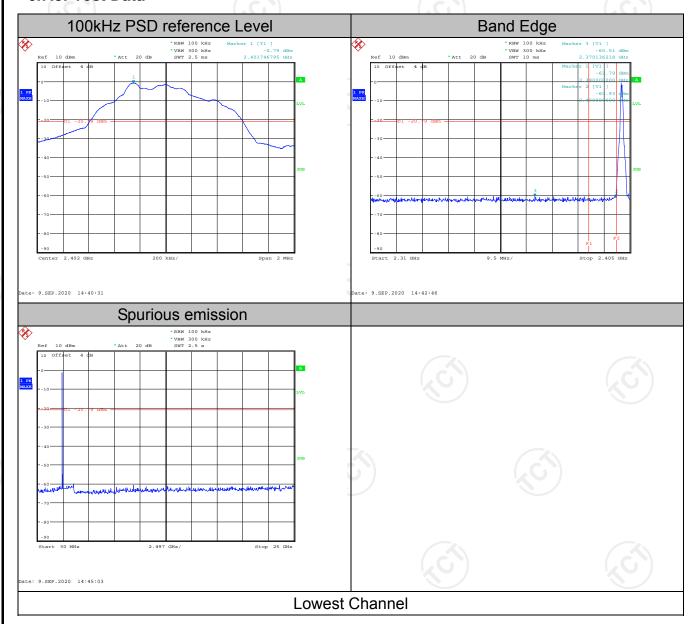


6.7.2. Test Instruments

RF Test Room						
Equipment Manufacturer Model Serial Number Calibration						
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2021		
RF cable (9kHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021		
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021		

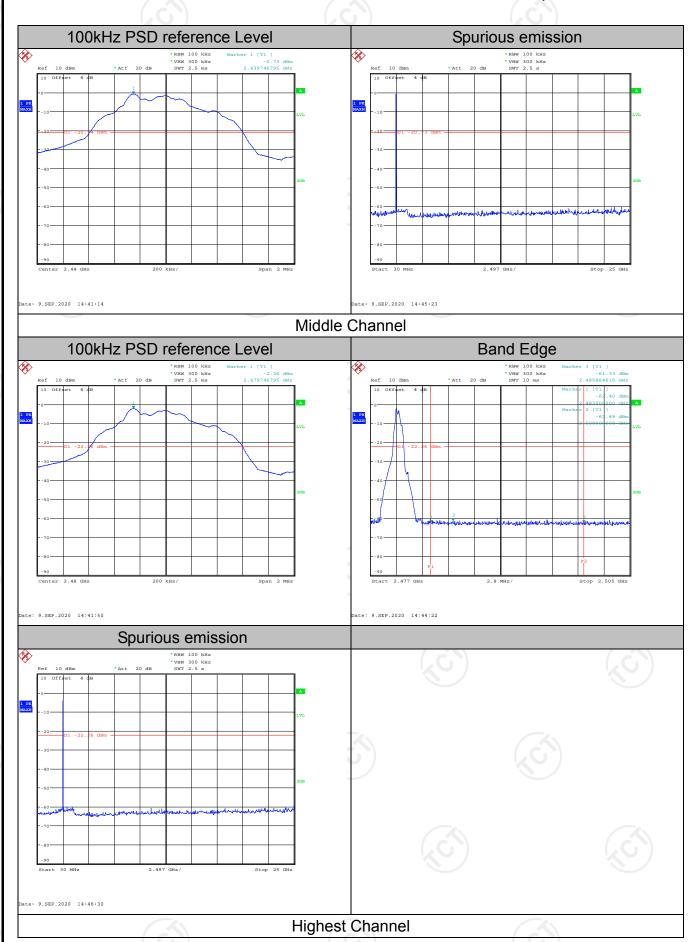
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.7.3. Test Data



Page 23 of 36







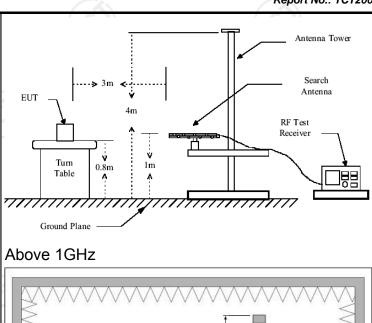
6.8. Radiated Spurious Emission Measurement

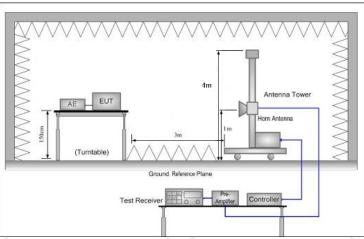
6.8.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209					
Test Method:	ANSI C63.10: 2013					
Frequency Range:	9 kHz to 25 GHz					
Measurement Distance:	3 m					
Antenna Polarization:	Horizontal & Vertical					
Operation mode:	Refer to item 4.1					
	Frequency	Detector	RBW	VBW		Remark
	9kHz- 150kHz	Quasi-pea	7 - 7 - 7 - 7 - 7	1kHz	_	si-peak Value
Receiver Setup:	150kHz- 30MHz	Quasi-pea		30kHz		si-peak Value
·	30MHz-1GHz	Quasi-pea	k 120KHz	300KHz	Quas	si-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Р	eak Value
	Above IGHZ	Peak	1MHz	10Hz	Ave	erage Value
	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)	
	0.009-0.490		2400/F(KHz)			300
	0.490-1.705		24000/F(KHz)		30	
	1.705-30 30-88		30 100		30	
	88-216		150		3	
Limit:	216-960		200		3	
	Above 960		500			3
	II Fredilency		ld Strength ovolts/meter)	Measure Distan (mete	ice	Detector
	Above 1GHz	7	500	3		Average
	710000 10112	_	5000	3		Peak
Test setup:	For radiated emissions below 30MHz Distance = 3m Computer Pre -Amplifier					
	0.3m Turn table Receiver					
	30MHz to 10		nd Plane			

Page 25 of 36







Test Procedure:

1. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. 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. A pre-amp and a high PASS filter are used for the test in order to get better signal level. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final



	measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m
	 above the ground or reference ground plane. 2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=120 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f >1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS





6.8.2. Test Instruments

	Radiated Em	ission Test Site	e (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 11, 2021
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 02, 2021
Pre-amplifier	HP	8447D	2727A05017	Sep. 02, 2021
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 27, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 04, 2022
Antenna Mast	Keleto	RE-AM	N/A	N/A
Line-4	ТСТ	RE-high-04	N/A	Sep. 02, 2021
Line-8	тст	RE-01	N/A	Jul. 27, 2021
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

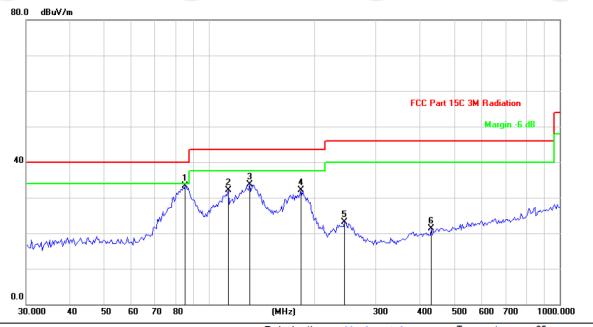
Page 28 of 36



6.8.3. Test Data

Please refer to following diagram for individual Below 1GHz

Horizontal:

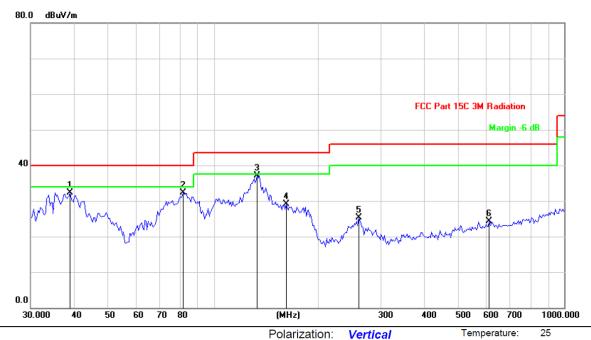


Site Polarization: Horizontal Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: AC 120V/60Hz Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
2		MHz	dBu∀	dB	dBuV/m	dB/m	dB	Detector
1	*	85.4769	46.88	-13.62	33.26	40.00	-6.74	peak
2	8	113.2200	42.31	-10.16	32.15	43.50	-11.35	peak
3	8	130.3048	49.63	-15.83	33.80	43.50	-9.70	peak
4	()	182.5783	47.11	-15.09	32.02	43.50	-11.48	peak
5		243.5431	36.11	-12.95	23.16	46.00	-22.84	peak
6	3	430.3052	29.84	-8.48	21.36	46.00	-24.64	peak



Vertical:



Site Polarization: Vertical Temperature: 25
Limit: FCC Part 15C 3M Radiation Power: AC 120V/60Hz Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB	dBuV/m	dB/m	dB	Detector
1		38.9080	43.56	-11.18	32.38	40.00	-7.62	peak
2		81.9477	48.05	-15.81	32.24	40.00	-7.76	peak
3	*	133.0809	53.13	-16.01	37.12	43.50	-6.38	peak
4		160.8848	45.28	-16.10	29.18	43.50	-14.32	peak
5	2	259.4433	37.82	-12.43	25.39	46.00	-20.61	peak
6	(611.4623	29.59	-5.36	24.23	46.00	-21.77	peak

Note: 1.The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

- 2. Measurements were conducted in all three channels (high, middle, low), and the worst case Mode (Middle channel) was submitted only.
- 3. Freq. = Emission frequency in MHz

 Measurement (dBμV/m) = Reading level (dBμV) + Corr. Factor (dB)

 Correction Factor= Antenna Factor + Cable loss Pre-amplifier

 Limit (dBμV/m) = Limit stated in standard

 $Margin (dB) = Measurement (dB\mu V/m) - Limits (dB\mu V/m)$

Any value more than 10dB below limit have not been specifically reported.

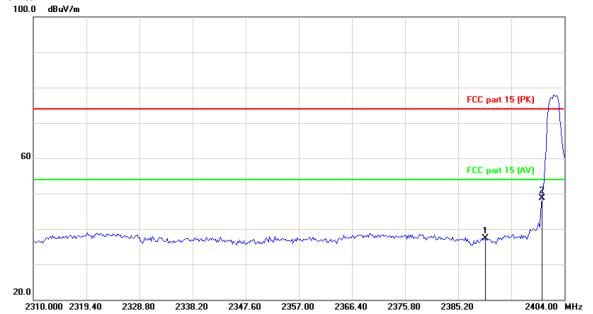
^{*} is meaning the worst frequency has been tested in the test frequency range



Test Result of Radiated Spurious at Band edges

Lowest channel 2402:

Horizontal:



Site Polarization: Horizontal Temperature: 25
Limit: FCC part 15 (PK) Power: Humidity: 55 %

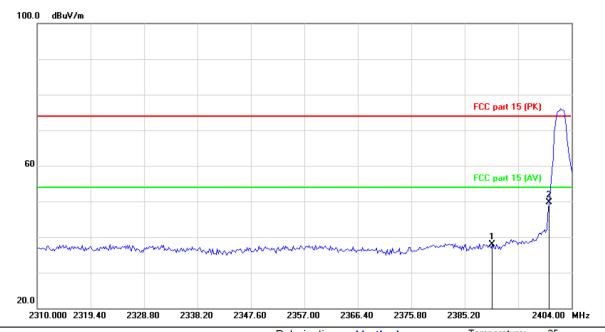
No.	. Mk. Freq.		Reading Correct M lk. Freq. Level Factor			Limit	Over	
		MHz	dBu∀	dB	dBuV/m	dB/m	dB	Detector
1		2390.000	50.42	-13.15	37.27	74.00	-36.73	peak
2	*	2400.000	61.92	-13.12	48.80	74.00	-25.20	peak



Page 31 of 36



Vertical:



Site Polarization: Vertical Temperature: 25
Limit: FCC part 15 (PK) Power: Humidity: 55 %

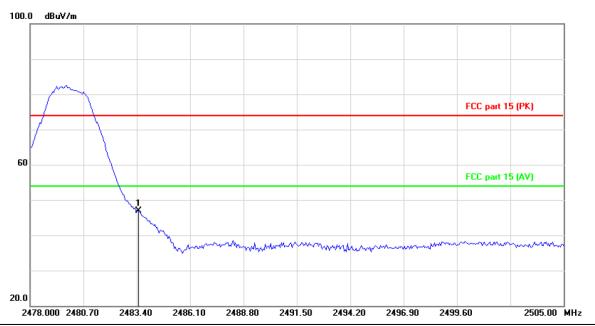
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
-		MHz	dBu∨	dB	dBuV/m	dB/m	dB	Detector
1	2	390.000	51.04	-13.15	37.89	74.00	-36.11	peak
2	* 2	400.000	62.81	-13.12	49.69	74.00	-24.31	peak





Highest channel 2480:

Horizontal:



Site Polarization: Horizontal Temperature: 25
Limit: FCC part 15 (PK) Power: Humidity: 55 %

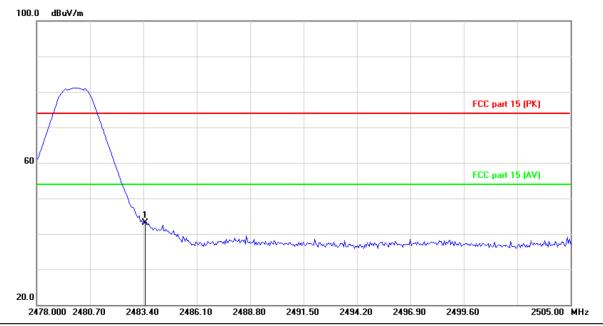
No. Mk.	Freq.	Reading Correct Level Factor			Limit Over		
	MHz	dBu∨	dB	dBuV/m	dB/m	dB	Detector
1 * 2	483.500	59.69	-12.84	46.85	74.00	-27.15	peak



Page 33 of 36



Vertical:



Site Polarization: Vertical Temperature: 25
Limit: FCC part 15 (PK) Power: Humidity: 55 %

No.	MI	k. Freq.	Reading C Freq. Level F		Measure- ment	Limit	Over	
		MHz	dBu∀	dB	dBuV/m	dB/m	dB	Detector
1	*	2483.500	56.03	-12.84	43.19	74.00	-30.81	peak



Page 34 of 36



Above 1GHz

		/ /						./ /	
Low chann	el: 2402 M	1Hz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Peak (dBµV/m)	AV	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4804	Н	46.66		0.66	47.32		74	54	-6.68
7206	Н	36.42		9.5	45.92		74	54	-8.08
	Н	-			-		I		\ /
4804	V	45.74		0.66	46.40	-	74	54	-7.60
7206	V	37.56		9.5	47.06	-	74	54	-6.94
	V					-	-		

Middle cha	nnel: 2440) MHz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emission Peak (dBµV/m)	AV	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4880	Н	45.68		0.66	46.34		74	54	-7.66
7320	Н	39.41		9.85	49.26		74	54	-4.74
	Н					\			 /
4880	V	44.83		0.66	45.49		74	54	-8.51
7320	V	38.97		9.85	48.82		74	54	-5.18
	V	<u></u>			<u> </u>			<u></u>	

High chann	nel: 2480 N	ЛHz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4960	Н	46.85		1.33	48.18		74	54	-5.82
7440	Η	38.99	Đ	10.22	49.21		74	54	-4.79
	Η	-	-		-				
4960	V	45.74		1.33	47.07		74	54	-6.93
7440	V	37.92		10.22	48.14		74	54	-5.86
	V								

Note:

- 1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss Pre-amplifier
- 2. $Margin (dB) = Emission Level (Peak) (dB\mu V/m)-Average limit (dB\mu V/m)$
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
- 6. All the restriction bands are compliance with the limit of 15.209.





Appendix A: Photographs of Test Setup

Refer to the test report No. TCT200831E016

Appendix B: Photographs of EUT

Refer to the test report No. TCT200831E016



<u>(1)</u>

(CT)