

FCC

RF

TEST REPORT

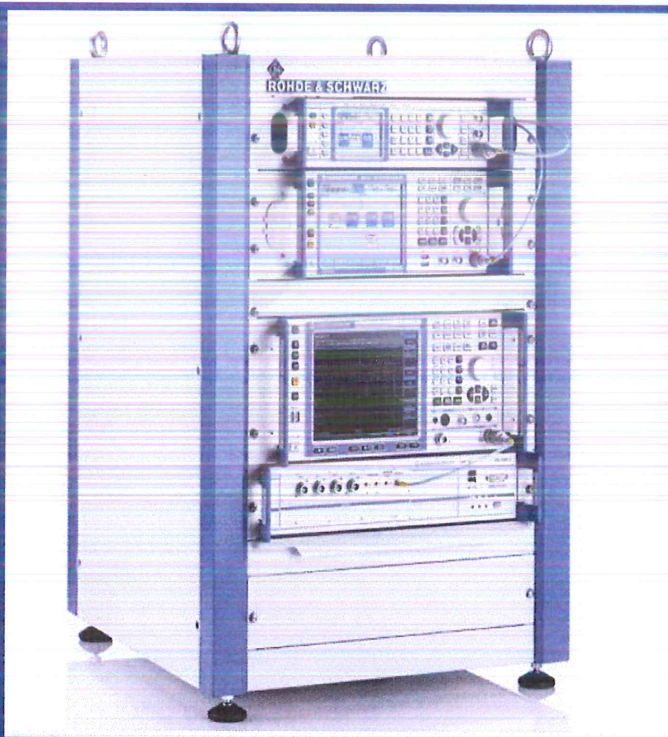
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Notebook Computer

ISSUED TO
Samsung Electronics Co., Ltd.

19 Chapin Road, Building D, Pine Brook, New Jersey, United States,
07058



Prepared by:

Ye Hongji
Ye Hongji

Date

Nov. 18, 2020

Approved by:

Wei Yanquan
Wei Yanquan
(Chief Engineer)

Date

Nov. 18, 2020

Report No.: BL-SZ20B0546-601

EUT Name: Notebook Computer

Model Name: NT550XDA (refer section 2.4)

Brand Name: Samsung

Test Standard: 47 CFR Part 15 Subpart E
47 CFR Part 15 Subpart C

FCC ID: ZCANP550XDAX

Test Conclusion: Pass

Test Date: Nov. 18, 2020

Date of Issue: Nov. 18, 2020

NOTE: This test report of test results only related to testing samples, which can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen BALUN Technology Co., Ltd. Any objections should be raised within thirty days from the date of issue. To validate the report, please contact us.

Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Nov. 18, 2020</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	ADMINISTRATIVE DATA (GENERAL INFORMATION)	3
1.1	Identification of the Testing Laboratory	3
1.2	Identification of the Responsible Testing Location	3
1.3	Laboratory Condition	3
1.4	Announce	4
2	PRODUCT INFORMATION	5
2.1	Applicant	5
2.2	Manufacturer	5
2.3	Factory	5
2.4	General Description for Equipment under Test (EUT)	5
2.5	Technical Information	6
3	SUMMARY OF TEST RESULTS	7
3.1	Test Standards	7
3.2	Verdict	7
4	GENERAL TEST CONFIGURATIONS	8
4.1	Test Environments	8
4.2	Test Equipment List	8
4.3	Measurement Uncertainty	9
4.4	Description of Test Setup	10
5	TEST ITEMS	13
5.1	Radiated Spurious Emissions	13
ANNEX A	TEST RESULT	18
A.1	Radiated Spurious Emissions	18
ANNEX B	TEST SETUP PHOTOS	21

1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation(A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

- (1) The test report reference to the report template version v4.4.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant

Applicant	Samsung Electronics Co., Ltd.
Address	19 Chapin Road, Building D, Pine Brook, New Jersey, United States, 07058

2.2 Manufacturer

Manufacturer	Nanchang Huaqin Electronic Technology Co Ltd
Address	No.2999, Tianxiang Avenue, High-tech Development Zone, Nanchang City, Jiangxi Province, P.R. China

2.3 Factory

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	Notebook Computer
Model Name Under Test	NT550XDA
Series Model Name	550XDA, NT550XDZ, 550XDZ, NT551XDA, NP550XDA, NT550XDA
Description of Model name differentiation	Only differences are model names for trading purpose.
Serial Number	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	359.26 x 241.3 x18.85mm
Weight (Approx.)	1.89Kg

2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax, U-NII-1/2A/2C/3
-----------------------------------	---

The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	U-NII-1: 5150 MHz to 5250 MHz, U-NII-2A: 5250 MHz to 5350 MHz, U-NII-2C: 5470 MHz to 5725 MHz U-NII-3: 5725 MHz to 5850 MHz 2.4G: 2412 MHz to 2462 MHz
Product Type	☐ Mobile ☒ Portable ☐ Fix Location
Modulation technology	DSSS, OFDM, OFDMA
Modulation Type	1024QAM, 256QAM, 64QAM, 16QAM, BPSK, QPSK 256QAM, 1024QAM
Channel Bandwidth	802.11b: 20 MHz 802.11g: 20 MHz 802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz 802.11ac: 20 MHz, 40 MHz, 80 MHz, 160MHz 802.11ax: 20 MHz, 40 MHz, 80 MHz, 160MHz
Antenna System (eg., MIMO, Smart Antenna)	Cyclic Delay Diversity (CDD)
Categorization as Correlated or Completely Uncorrelated	Correlated
Antenna Type	Main Antenna Aux. Antenna PIFA Antenna

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart E (10-1-16 Edition)	Unlicensed National Information Infrastructure Devices
2	KDB Publication 789033 D02v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
3	KDB Publication 662911 D01v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
4	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
5	47 CFR Part 15, Subpart C	Miscellaneous Wireless Communications Services
6	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

3.2 Verdict

No.	Description	FCC Part No.	RSS Part No.	Test Result	Verdict
1	Radiated Spurious Emissions	15.407(b) 15.209; 15.247(d)	RSS-247, 6.2 RSS-247, 5.5	ANNEX A.1	Pass
Note ¹ : This report is only for simultaneous transmission with different technologies and bands.					

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	45% to 55%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22°C to +25°C
	LT (Low Temperature)	-10°C
	HT (High Temperature)	+35°C
Working Voltage of the EUT	NV (Normal Voltage)	11.4 V
	LV (Low Voltage)	10.0 V
	HV (High Voltage)	12.5 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2020.06.08	2021.06.07
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2020.06.08	2021.06.07
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2020.06.09	2021.06.08
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2020.06.09	2021.06.08
LISN	SCHWARZBECK	NSLK 8127	8127-687	2020.06.09	2021.06.08
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2020.06.08	2021.06.07
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2020.06.08	2021.06.07
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2020.06.08	2021.06.07
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
Temperature Chamber	AHK	SP20	1412	2020.06.10	2021.06.09
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2019.10.29	2021.10.28
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2021.07.01
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2021.07.01
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2019.01.06	2021.01.05
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	N/A	2018.08.08	2021.08.07
Shielded Enclosure	ChangNing	CN-130701	130703	--	--
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2020.06.08	2021.06.07
Power Amplifier	OPHIR RF	5225F	1037	2020.02.19	2021.02.18
Power Amplifier	OPHIR RF	5273F	1016	2020.02.19	2021.02.18
Directional Coupler	Werlantone	C5982-10	109275	N/A	N/A
Directional Coupler	Werlantone	CHP-273E	S00801z-01	N/A	N/A

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Sound Level Meter	B&K	NL-20	00844023	2020.10.23	2021.10.22
Ear Simulator	B&K	4192-L-001	3038758	2020.02.19	2021.02.18
Audio analyzer	B&K	UPL 16	100129	2020.02.28	2021.02.27

4.3 Measurement Uncertainty

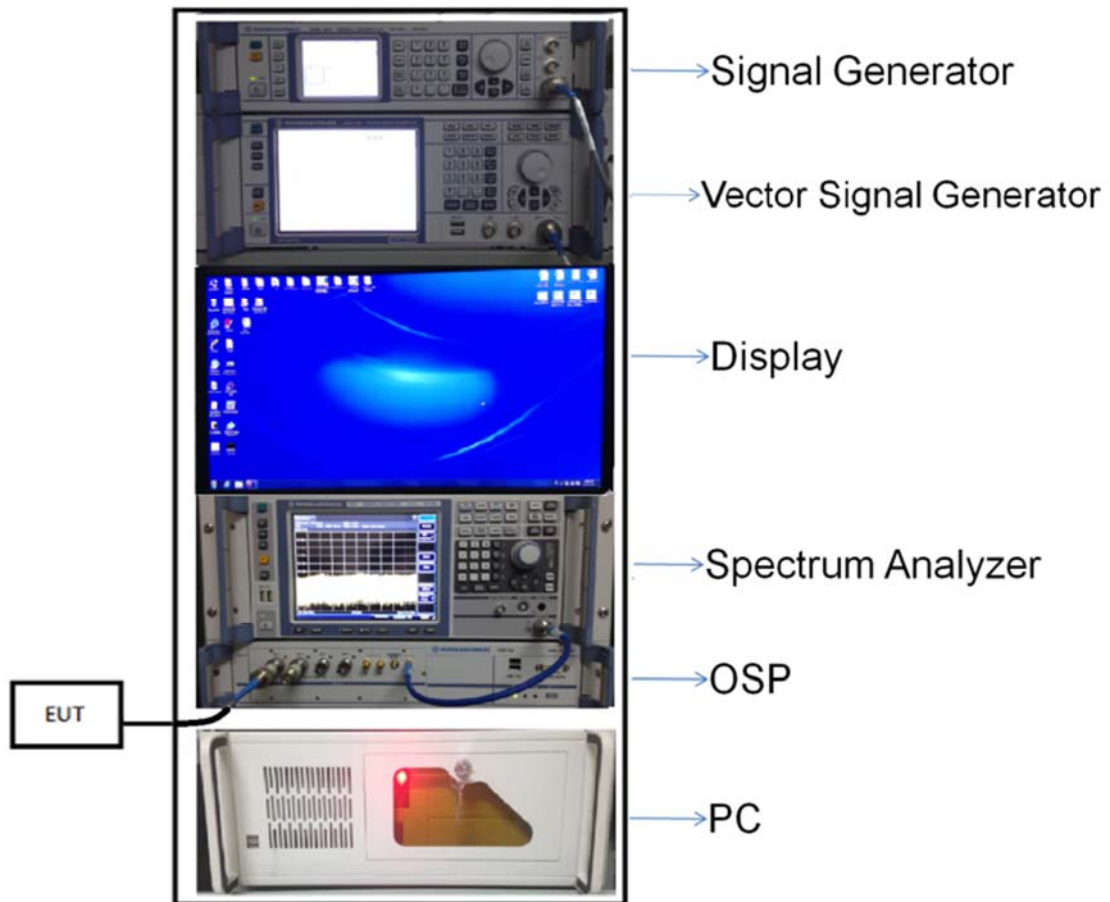
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Occupied Channel Bandwidth	±4%
RF output power, conducted	±1.4 dB
Power Spectral Density, conducted	±2.5 dB
Unwanted Emissions, conducted	±2.8 dB
All emissions, radiated	±5.4 dB
Temperature	±1°C
Humidity	±4%

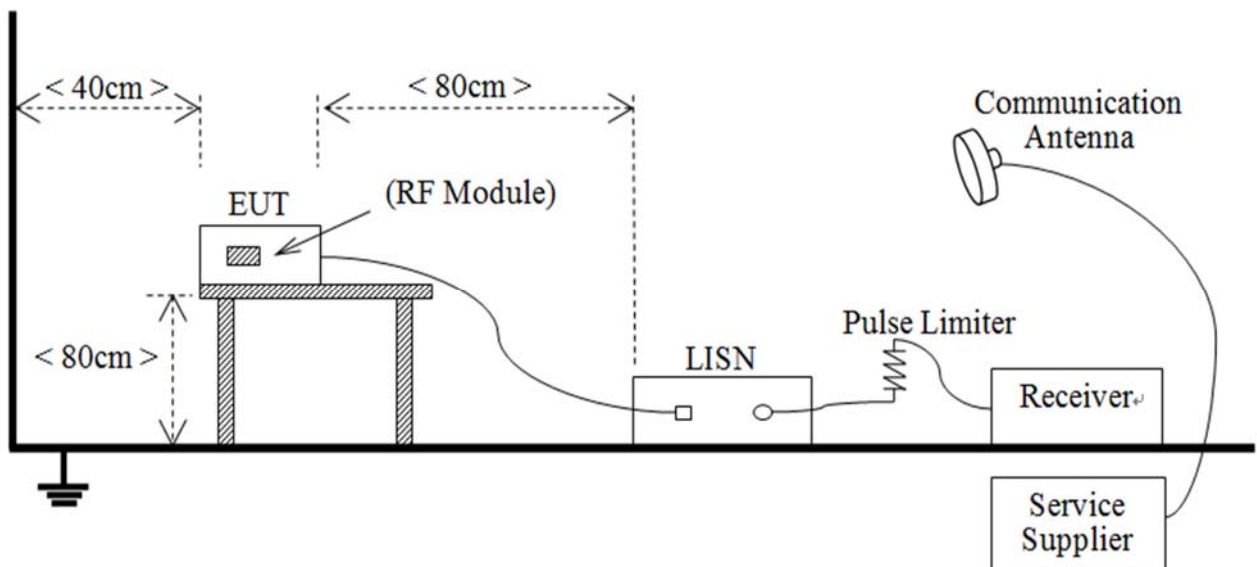
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



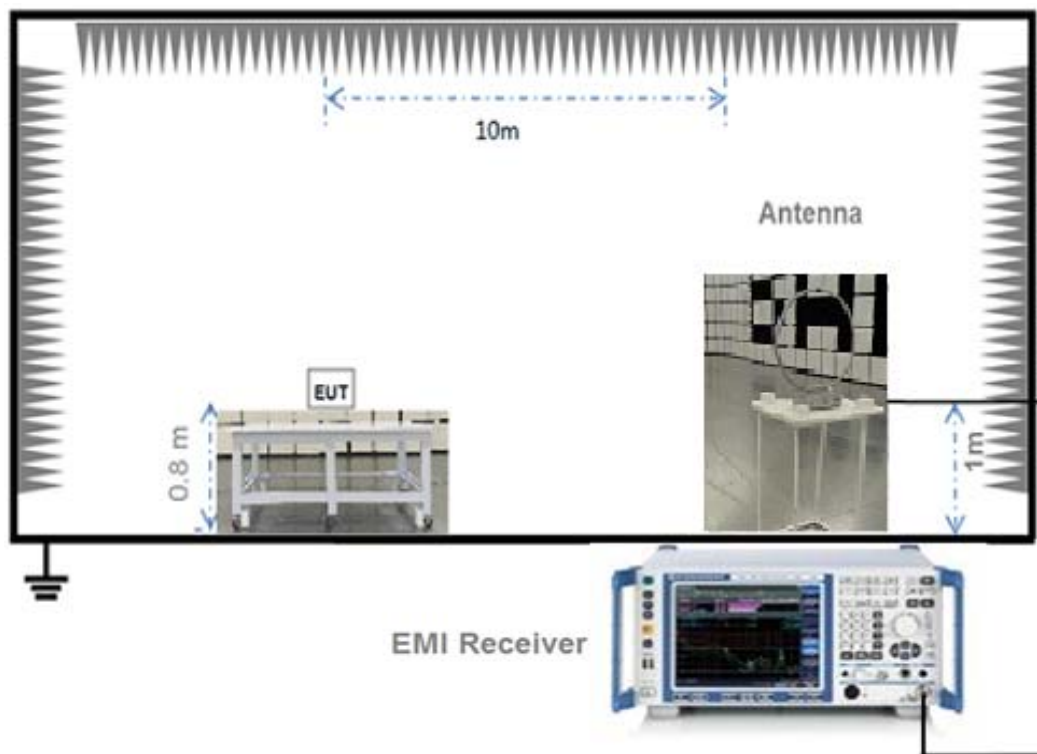
(Diagram 1)

4.4.2 For AC Power Supply Port Test



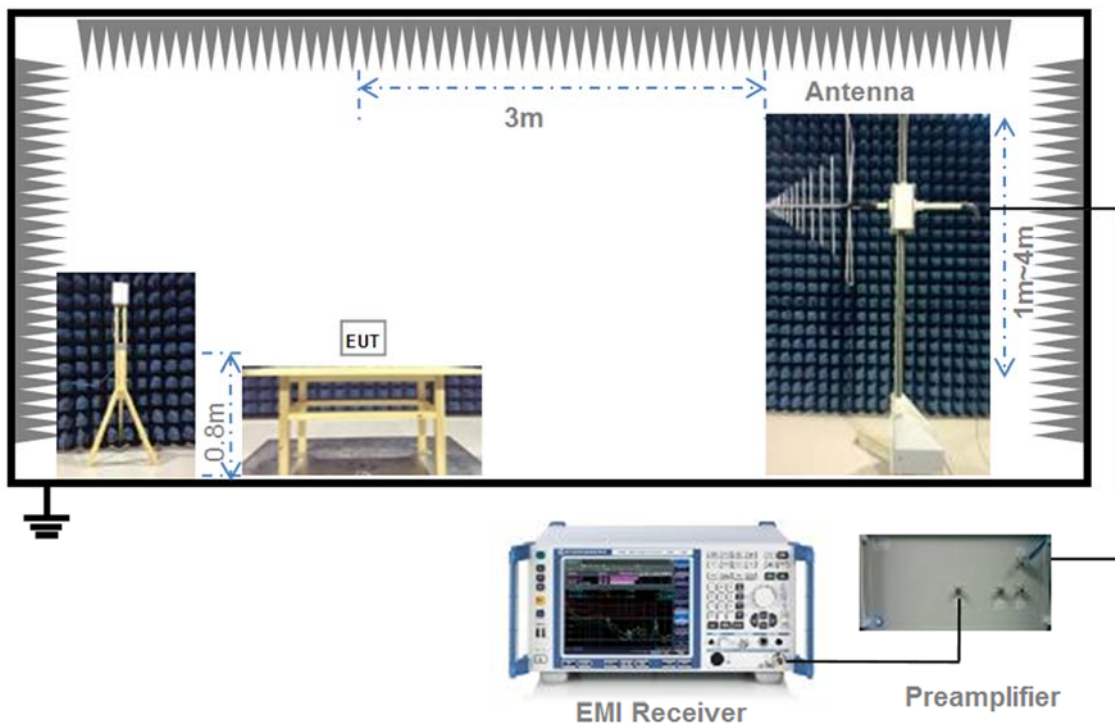
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



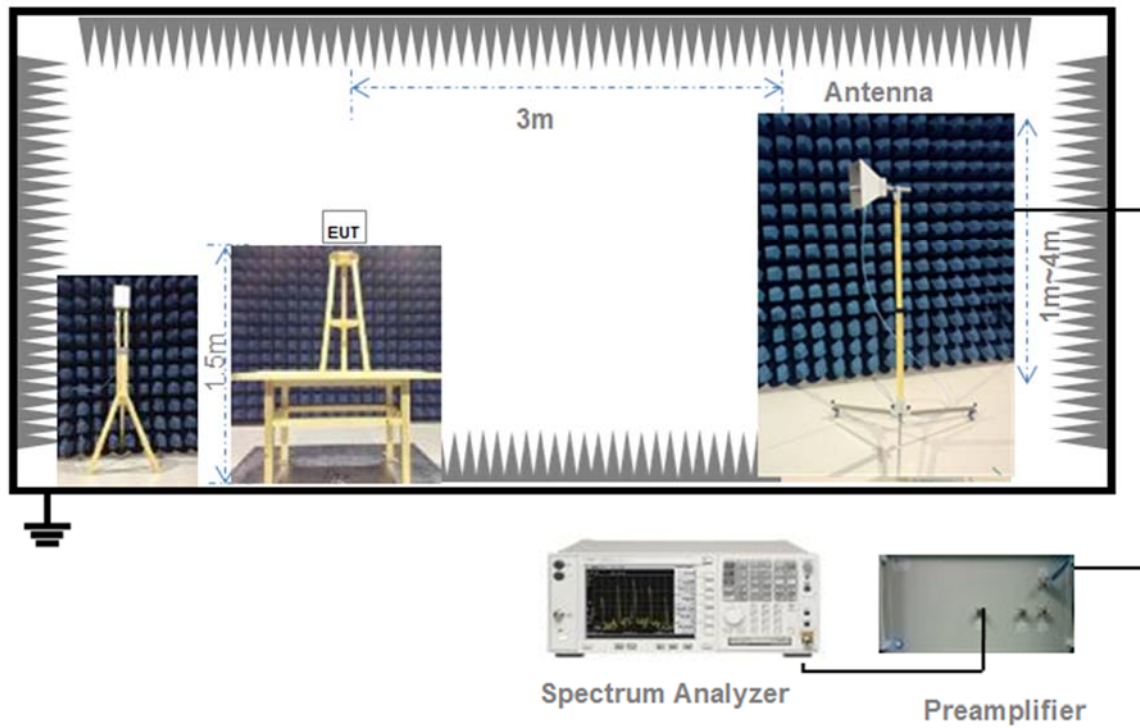
(Diagram 3)

4.4.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.4.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

5 TEST ITEMS

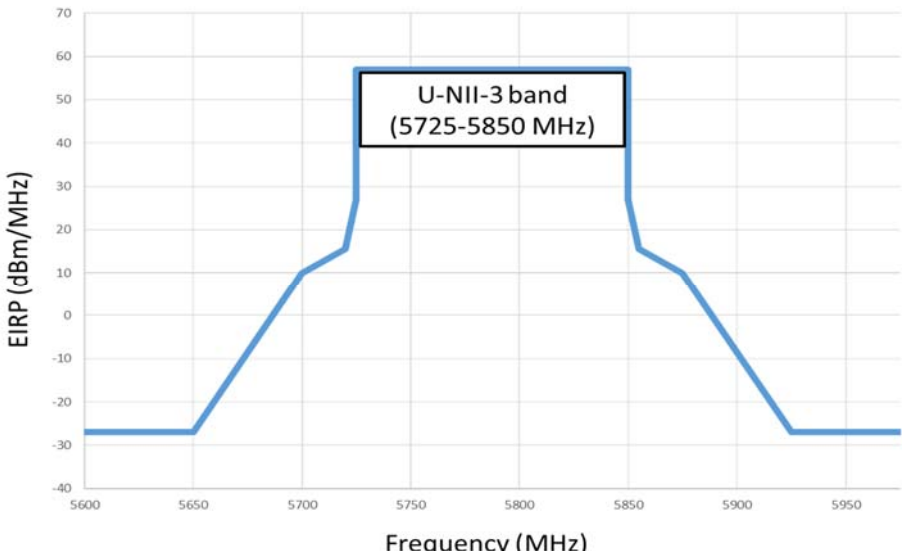
5.1 Radiated Spurious Emissions

5.1.1 Limit

FCC §15.209 & 15.407(b), 15.247(d), RSS-247, 6.2, RSS-247, 5.5

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
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

Note ¹: The Limit for radiated test was performed according to FCC Part 15C

Un-restricted band emissions	
Out Operating Band (MHz)	Limit
2400 - 2483.5	20 dB lower than the bandwidth of the 100 kHz bandwidth in the frequency band containing the highest level of required power
5150 - 5250	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5250 - 5350	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5470 - 5725	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5725 - 5850	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. 

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength.

5.1.2 Test Setup

The section 4.4.3-4.4.5 (Diagram 3 - Diagram 5) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.1.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

- a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)
- c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
- d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
- e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

- f) Compare the resultant electric field strength level to the applicable limit.
- g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 1.
- b) VBW $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be longer for low duty cycle applications).

Table 1—RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

- a) The EUT shall be configured to operate at the maximum achievable duty cycle.
- b) Measure the duty cycle, x , of the transmitter output signal as described in section 6.0.
- c) RBW = 1 MHz (unless otherwise specified).
- d) VBW $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
- f) Averaging type = power (i.e., RMS).
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- g) Sweep time = auto.
- h) Perform a trace average of at least 100 traces.
- i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

- 1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
- 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.
- 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360° , and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.1.4 Test Result

Please refer to ANNEX A.1.

ANNEX A TEST RESULT

A.1 Radiated Spurious Emissions

Test Data

Note¹: The symbol of "--" in the table which means not application.

Note²: For the test data above 1 GHz, According the ANSI C63.4, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note⁴: For Multiple transmitter output, the quantity $10 \log(NANT)$ dB is added to each spectrum value before comparing to the emission limit. When testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding $10 \log(NANT)$ if the measurements are made relative to the in-band emissions on the individual outputs.

Note⁵: The spurious above 18G is noise only, do not show on the report.

Test Data

Simultaneous transmission

MAIN antenna : 2.4G 802.11n20 mode + AUX antenna : BLE mode

30 MHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1196.200	44.98	-15.04	74.0	-29.02	Peak	124.00	150	Vertical	Pass
1**	1196.200	35.53	-15.04	54.0	-18.47	AV	124.00	150	Vertical	Pass
2	2406.600	100.61	-10.42	74.0	26.61	Peak	7.00	150	Vertical	N/A
2**	2406.600	93.47	-10.42	54.0	39.47	AV	7.00	150	Vertical	N/A
3	2479.700	98.29	-10.27	74.0	24.29	Peak	287.00	150	Vertical	N/A
3**	2479.700	96.14	-10.27	54.0	42.14	AV	287.00	150	Vertical	N/A
4	5420.000	49.87	-0.33	74.0	-24.13	Peak	259.00	150	Vertical	Pass
4**	5420.000	40.02	-0.33	54.0	-13.98	AV	259.00	150	Vertical	Pass
5	9646.151	48.57	18.95	74.0	-25.43	Peak	266.00	150	Vertical	Pass
5**	9646.151	36.29	18.95	54.0	-17.71	AV	266.00	150	Vertical	Pass
6	15820.200	55.03	23.28	74.0	-18.97	Peak	92.00	150	Vertical	Pass
6**	15820.200	42.92	23.28	54.0	-11.08	AV	92.00	150	Vertical	Pass

30 MHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1194.900	40.94	-15.18	74.0	-33.06	Peak	325.00	150	Horizontal	Pass
1**	1194.900	32.86	-15.18	54.0	-21.14	AV	325.00	150	Horizontal	Pass
2	2406.000	100.65	-10.45	74.0	26.65	Peak	45.00	150	Horizontal	N/A
2**	2406.000	93.82	-10.45	54.0	39.82	AV	45.00	150	Horizontal	N/A
3	2480.000	96.87	-10.25	74.0	22.87	Peak	223.00	150	Horizontal	N/A
3**	2480.000	96.19	-10.25	54.0	42.19	AV	223.00	150	Horizontal	N/A
4	4778.600	47.82	-2.15	74.0	-26.18	Peak	16.00	150	Horizontal	Pass
4**	4778.600	38.24	-2.15	54.0	-15.76	AV	16.00	150	Horizontal	Pass
5	6911.800	51.91	4.67	74.0	-22.09	Peak	44.00	150	Horizontal	Pass
5**	6911.800	42.88	4.67	54.0	-11.12	AV	44.00	150	Horizontal	Pass
6	15435.375	54.87	23.23	74.0	-19.13	Peak	48.00	150	Horizontal	Pass
6**	15435.375	42.68	23.23	54.0	-11.32	AV	48.00	150	Horizontal	Pass

MAIN antenna : 5G 802.11n20 mode + AUX antenna : BLE mode and 5G 802.11n20 mode

30 MHz to 18 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1196.300	43.66	-15.03	74.0	-30.34	Peak	303.00	150	Vertical	Pass
1**	1196.300	35.59	-15.03	54.0	-18.41	AV	303.00	150	Vertical	Pass
2	2402.100	99.82	-10.45	68.2	31.62	Peak	27.00	150	Vertical	N/A
2**	2402.100	92.92	-10.45	--	92.92	AV	27.00	150	Vertical	N/A
3	4061.600	46.88	-3.97	74.0	-27.12	Peak	60.00	150	Vertical	Pass
3**	4061.600	35.13	-3.97	54.0	-18.87	AV	60.00	150	Vertical	Pass
4	5181.800	99.31	-0.58	--	-108.69	Peak	208.00	150	Vertical	N/A
4**	5181.800	92.46	-0.58	--	92.46	AV	208.00	150	Vertical	N/A
5	11783.137	49.90	18.68	74.0	-24.10	Peak	360.00	150	Vertical	Pass
5**	11783.137	37.51	18.68	54.0	-16.49	AV	360.00	150	Vertical	Pass
6	15503.887	55.42	23.93	74.0	-18.58	Peak	295.00	150	Vertical	Pass
6**	15503.887	44.29	23.93	54.0	-9.71	AV	295.00	150	Vertical	Pass

30 MHz to 18 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1196.300	43.66	-15.03	74.0	-30.34	Peak	303.00	150	Vertical	Pass
1**	1196.300	35.59	-15.03	54.0	-18.41	AV	303.00	150	Vertical	Pass
2	2402.100	99.82	-10.45	68.2	31.62	Peak	27.00	150	Vertical	N/A
2**	2402.100	92.92	-10.45	--	92.92	AV	27.00	150	Vertical	N/A
3	4061.600	46.88	-3.97	74.0	-27.12	Peak	60.00	150	Vertical	Pass
3**	4061.600	35.13	-3.97	54.0	-18.87	AV	60.00	150	Vertical	Pass
4	5181.800	99.31	-0.58	--	-108.69	Peak	208.00	150	Vertical	N/A
4**	5181.800	92.46	-0.58	--	92.46	AV	208.00	150	Vertical	N/A
5	11783.137	49.90	18.68	74.0	-24.10	Peak	360.00	150	Vertical	Pass
5**	11783.137	37.51	18.68	54.0	-16.49	AV	360.00	150	Vertical	Pass
6	15503.887	55.42	23.93	74.0	-18.58	Peak	295.00	150	Vertical	Pass
6**	15503.887	44.29	23.93	54.0	-9.71	AV	295.00	150	Vertical	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document "BL-SZ20B0546-AR.PDF".

--END OF REPORT--