



Test Report No:
24B0982R-RFUSV09S-A

TEST REPORT

FCC Rules & Regulations

Product Name	bike rear light
Brand Name	LEZYNE
Model No.	RADAR DRIVE
FCC ID	2AD4S-1LED43R
Applicant's Name / Address	Lezyne USA, Incorporated 5470 Kietzke Ln., Ste 300, Reno Nevada 89511, United States
Manufacturer's Name	Lezyne USA, Incorporated
Test Method Requested, Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Verdict Summary	IN COMPLIANCE
Documented by Jinn Chen	
Approved by Alan Chen	
Date of Receipt	2024/11/28
Date of Issue	2026/05/19
Report Version	V1.0

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Appendix E. Test Setup Photograph

Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General Conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	2026/05/19

Summary of Test Result

Report Clause	Test Items	Result (PASS/FAIL)	Remark
3	AC Power Line Conducted Emission	PASS	-
4	20dB Bandwidth	PASS	
5	Field Strength of Fundamental	PASS	-
6	Radiated Emission	PASS	-

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 Information

1.1. EUT Description

Frequency Range	24.0 ~ 24.25 GHz
Operation Frequency / Channel Number	24.205 GHz / 1 Channel
Type of Modulation	FMCW

Antenna Information				
Item	Brand Name	Model No.	Type	Gain (dBi)
1	TERASILIC	FEM11-F09	PCB	10

1.2. EUT Information

EUT Power Type	From Adapter / DC power
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1.3. Testing Location Information

USA	FCC Designation Number: TW0033
Canada	CAB Identifier Number: TW3023 / Company Number: 26930

Site Description	Accredited by TAF
	Accredited Number: 3023

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
	Linkou Laboratory
Address	No. 85, Wenlin St., Linkou Dist., New Taipei City 244017, Taiwan, R.O.C.
Performed Location	No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	+886-3-275-7255
Fax Number	+886-3-327-8031

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual	Test Date	Tested By
Radiated Emission	Temperature (°C)	10~40 °C	23.9~25.4°C	2025/08/19~	Nova Chu
	Humidity (%RH)	10~90 %	48~66%	2026/05/15	

1.4. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncertainty
AC Power Line Conducted Emission	± 3.50 dB
Field Strength of Fundamental	± 4.19 dB
Radiated Emission	9 kHz~30 MHz: ± 3.30 dB 30 MHz~1 GHz: ± 5.19 dB 1 GHz~18 GHz: ± 4.46 dB 18 GHz~40 GHz: ± 4.19 dB 40GHz~50GHz: ± 4.08 dB 50GHz~75GHz: ± 3.09 dB 75GHz~110GHz: ± 3.04 dB
20dB Bandwidth	± 1580.61 Hz

1.5. List of Test Equipment

For Conduction Measurements / HY-SR01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	EMI Test Receiver	R&S	ESR7	101601	2025/04/28	2026/04/27
V	Two-Line V-Network	R&S	ENV216	101306	2024/04/01	2026/03/31
V	Two-Line V-Network	R&S	ENV216	101307	2025/08/06	2027/08/05
V	Coaxial Cable	SUHNER	RG400_BNC	RF001	2025/01/10	2026/01/09

Note:

1. Two-Line V-Network is calibrated every two years, the other equipments are calibrated every one year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: e3 230303 dekra V9.

For Radiated Measurements / HY-CB02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	Loop Antenna	AMETEK	HLA6121	49611	2026/02/04	2027/02/03
V	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-0675	2025/08/14	2027/08/13
V	Horn Antenna	RF SPIN	DRH18-E	210503A18ES	2026/02/06	2028/02/05
V	Horn Antenna	Com-Power	AH-840	101100	2025/10/07	2027/10/06
V	Pre-Amplifier	Queitek	MPA0301	AP-180C	2026/01/10	2027/01/09
V	Pre-Amplifier	SGH	SGH118-HS	20211102-1	2026/01/10	2027/01/09
V	Pre-Amplifier	SGH	PRAMP118	20200203	2026/01/10	2027/01/09
V	Pre-Amplifier	EMCI	EMC184045SE	980369	2026/01/10	2027/01/09
V	Coaxial Cable	SGH	EMC102-KM-KM-600	1160311	2026/01/10	2027/01/09
V	Coaxial Cable	SGH	EMC102-KM-KM-7000	170242	2026/01/10	2027/01/09
V	Horn Antenna with waveguide adapter	QuinStar	QWH-QPRR00	1409700013	2023/10/19	2026/10/18
V	Horn Antenna	VDI	RCH015RL (50-75GHz)	--	2024/12/17	2027/12/16
V	Horn Antenna	VDI	RCH012RL(60-90GHz)	--	2024/12/17	2027/12/16
V	Horn Antenna	VDI	RCH08RL(90-140GHz)	--	2024/12/17	2027/12/16
V	Down Convertor(SAX156)	VDI	N9029AV15(AT0-55847)	US54250119	2024/12/17	2027/12/16
V	Down Convertor(SAX902)	VDI	N9029AV10(AT0-74929)	US53250010	2024/12/17	2027/12/16
V	Down Convertor(SAX091)	VDI	N9029AV08(AT0-59571)	US53250004	2024/12/17	2027/12/16
V	Signal Analyzer	R&S	FSV3044	101113	2025/12/23	2026/12/22
V	Spectrum Analyzer	KEYSIGHT	N9030B	MY56320509	2025/07/16	2026/07/15
V	Coaxial Cable	SGH	HA800	GD20110223-2	2026/01/10	2027/01/09
V	Coaxial Cable	SGH	HA800	GD20110222-4	2026/01/10	2027/01/09
V	Coaxial Cable	SGH	SGH18	202108-5	2026/01/10	2027/01/09
V	Coaxial Cable	SGH	SGH18	202212-2	2026/01/10	2027/01/09

Note:

1. Bi-Log Antenna and Horn Antenna(AH-840) is calibrated every two years, VDI and Millitech equipment are calibrated every three years, other equipment is calibrated every year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: e3 230303 dekra V9 and Signal Analyzer / N9030B Version: A.25.08.

2. Test Configuration of EUT

2.1. Test Condition

EUT Operational Condition	
Testing Voltage	AC 120V/60Hz

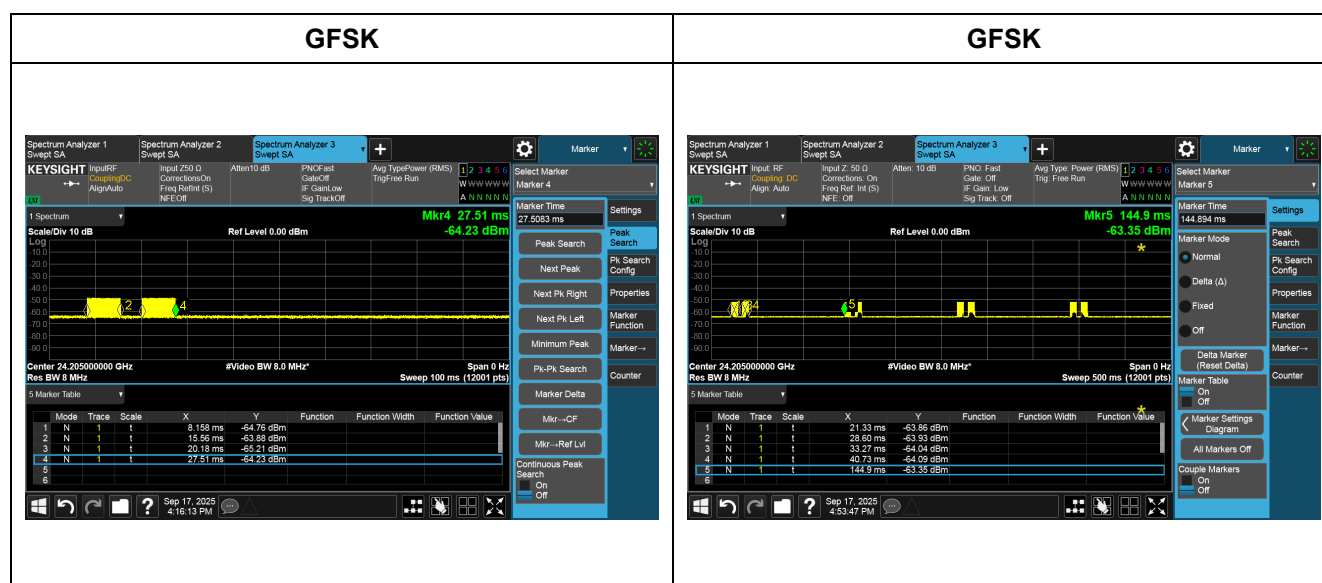
2.2. Test Software

Test Software Version	N/A
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2.3. Duty Cycle

Modulation	Time on of 100 ms (ms)	Duty Cycle (Ton/100 ms)	Duty Cycle Correction factor (dB)
GFSK	14.372	0.14372	-16.850

Note: Duty Cycle correction factor = 20 LOG(Duty Cycle).



2.4. Measurement Configuration

Test Mode	Mode 1 (Transmit)	FMCW
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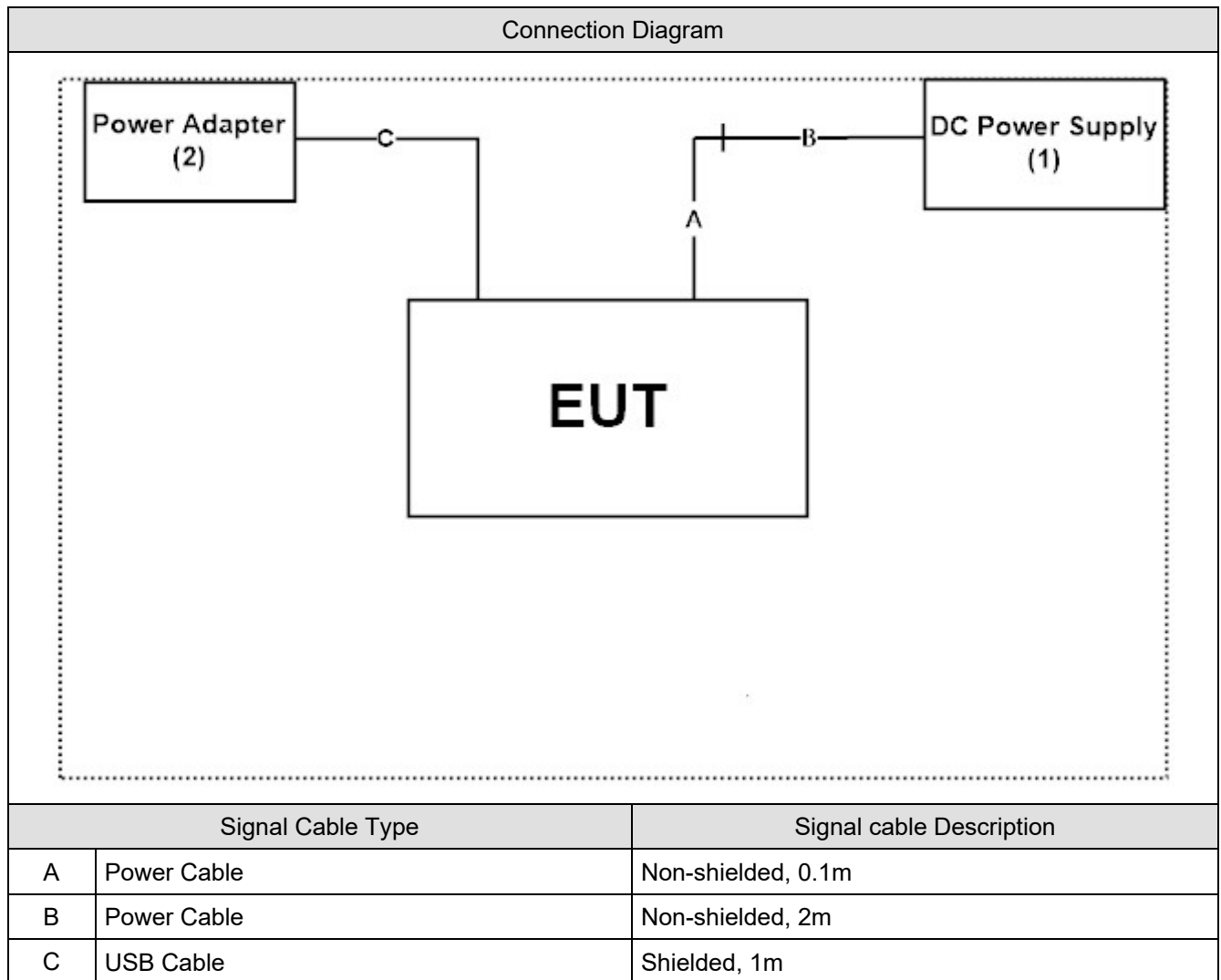
Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For radiated emission above 1GHz, radiated emission below 1 GHz and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.

2.5. Tested System Details

No.	Equipment	Brand Name	Model No.	Serial No.	Power Cord
1	DC Power Supply	KEYSIGHT	E36234A	MY59001234	Non-Shielded, 1.8m
2	Power Adapter	Apple	A1385	N/A	N/A

2.6. Configuration of tested System

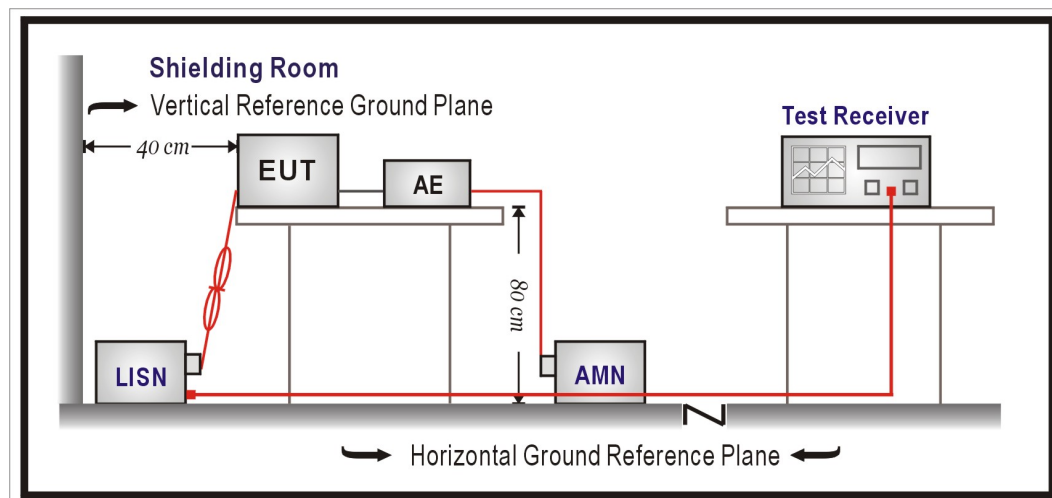


2.7. EUT Operating Procedures

1	Setup the EUT as shown in Section 2.6.
2	Provide the Power Source.
3	Configure the test mode.
4	Verify that the EUT works properly.

3. AC Power Line Conducted Emission

3.1. Test Setup



3.2. Test Limit

Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.3. Test Procedure

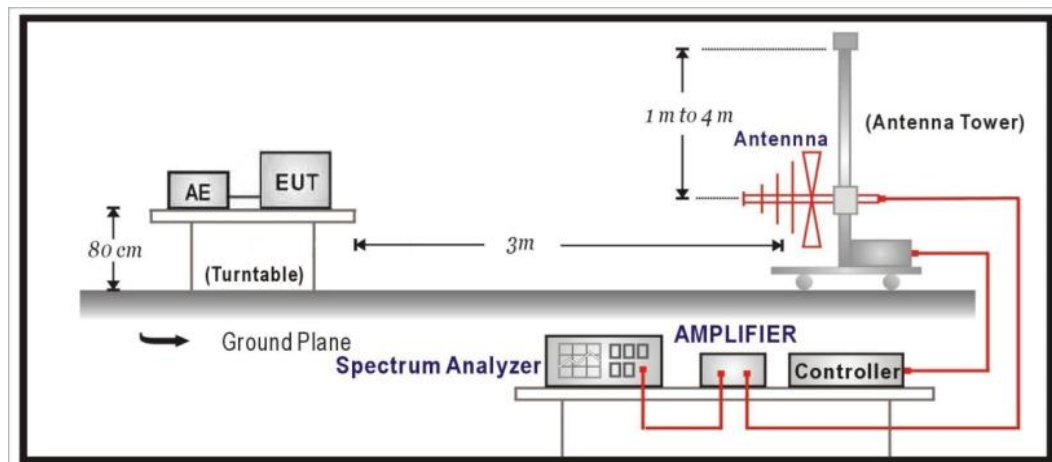
The EUT was setup according to ANSI C63.10-2020 for AC Power Line Conducted Emissions.

3.4. Test Result of AC Power Line Conducted Emission

Refer as Appendix A

4. 20dB Bandwidth

4.1. Test Setup



4.2. Test Limit

Intentional radiators operating under the alternative provisions to the general emission limit, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3. Test Procedures

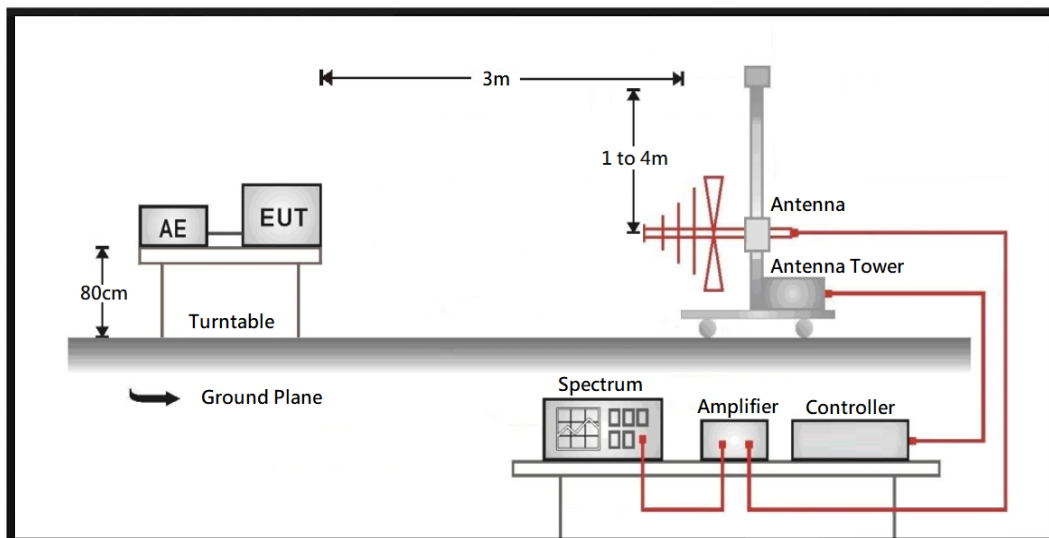
The testing follows the guidelines in ANSI C63.10-2020. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The EUT was placed on a turntable with 0.8m 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 bandwidth of the fundamental frequency was measured by spectrum analyzer with 1 MHz RBW and 3 MHz VBW. The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

4.4. Test Result of 20dB Bandwidth

Refer as Appendix B

5. Field Strength of Fundamental

5.1. Test Setup



5.2. Test Limit

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 ~ 928	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24000 ~ 24250	250	2500

Field Strength of Fundamental:

The antenna distance is 1m, average limit is $107.95 \text{ dB}\mu\text{V/m}$ (250 mV/m) + 9.54dB = $117.49 \text{ dB}\mu\text{V/m}$, peak limit is $127.95 \text{ dB}\mu\text{V/m}$ + 9.54dB = $137.49 \text{ dB}\mu\text{V/m}$.

The fundamental emission measurement was performed with FMCW desensitization considered according to ANSI C63.10-2020.

Note :

1. The lower limit shall apply at the transition frequencies.
2. Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$).
3. Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limit in §15.209, whichever is the lesser attenuation.
4. For frequencies above 1000 MHz, the field strength limit are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limit, specified above by more than 20 dB under any condition of modulation.

5.3. Test Procedures

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10-2020 on radiated measurement.

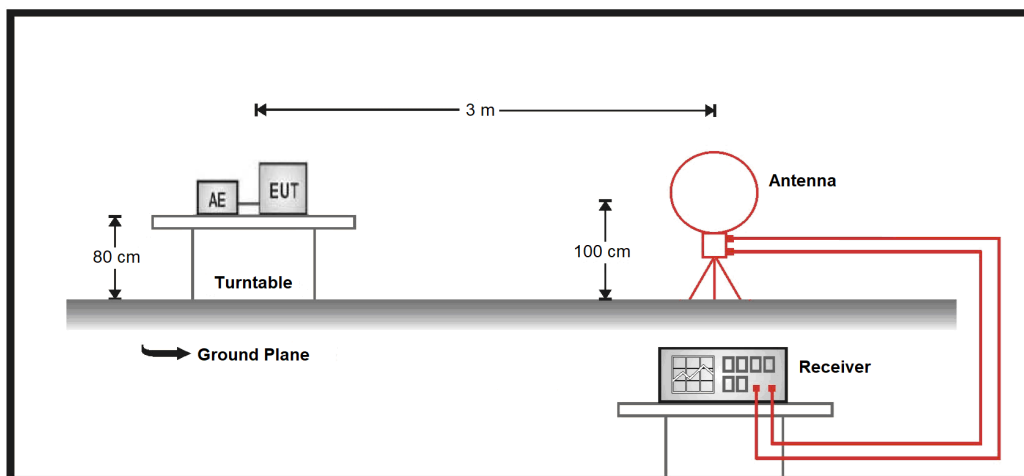
5.4. Test Result of Field Strength of Fundamental

Refer as Appendix C

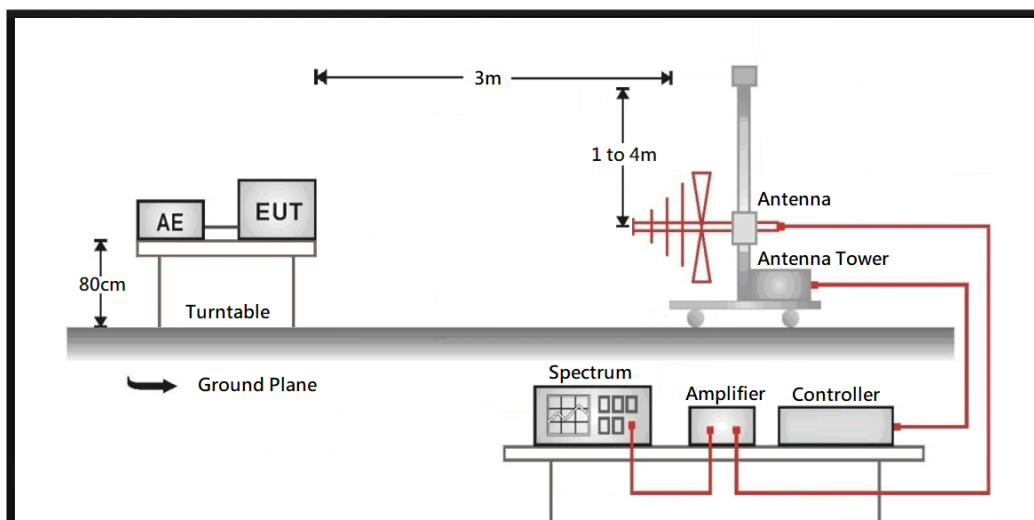
6. Radiated Emission

6.1. Test Setup

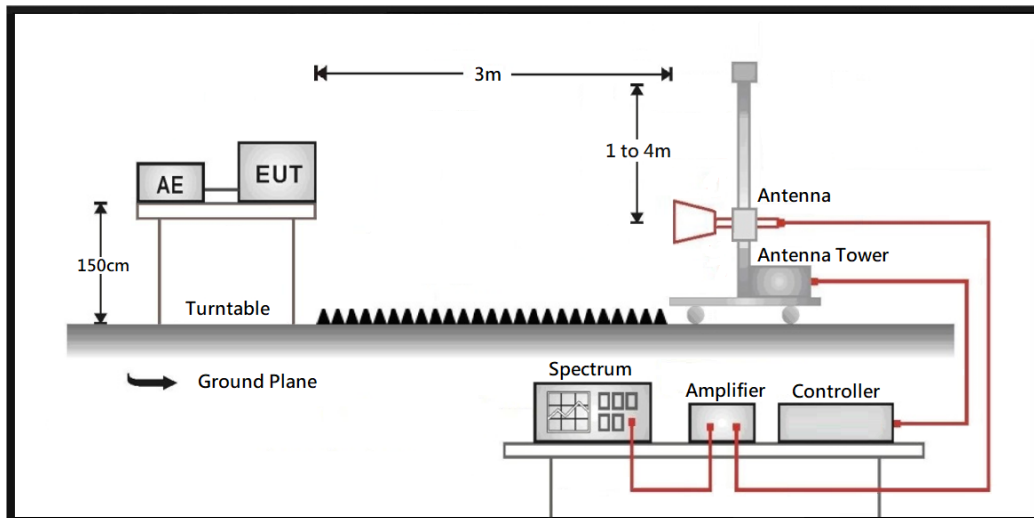
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



6.2. Test Limit

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	$20 \log (2400/F(\text{kHz}))$	300
0.490 – 1.705	$24000/F(\text{kHz})$	$20 \log (24000/F(\text{kHz}))$	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Field Strength of Harmonics

The antenna distance is 1m, average limit is $54 \text{ dB}\mu\text{V/m} + 9.54\text{dB} = 63.54 \text{ dB}\mu\text{V/m}$, peak limit is $74 \text{ dB}\mu\text{V/m} + 9.54\text{dB} = 83.54 \text{ dB}\mu\text{V/m}$.

Remarks:

1. Field strength ($\text{dB}\mu\text{V/m}$) = $20 \log$ Field strength ($\mu\text{V/m}$)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

6.3. Test Procedure

The EUT was setup according to ANSI C63.10-2020 for compliance to FCC 47CFR 15.249 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10-2020 on radiated measurement.

On any frequency or frequencies from 9kHz(include The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

The bandwidth below 1 GHz setting on the field strength meter is 120 kHz and above 1 GHz is 1MHz.

6.4. Test Result of Radiated Emissions

Refer as Appendix D