

FCC RADIO TEST REPORT

Applicant..... : DP AUDIO VIDEO LLC

Address..... : 920 Malcolm Ave Los Angeles, California, USA

Manufacturer..... : DONGGUAN YEST SCIENCE&TECHNOLOGY CO., LTD

Address..... : Floor 3. NO. 33 Hehe Road. Xiangxi Village, Liaobu Town, Dongguan City,
Guangdong Province, China

Factory..... : DONGGUAN YEST SCIENCE&TECHNOLOGY CO., LTD

Address..... : Floor 3. NO. 33 Hehe Road. Xiangxi Village, Liaobu Town, Dongguan City,
Guangdong Province, China

Product Name..... : CD Boombox

Brand Name..... : ONN

Model No. : AARD100043854, AAGRY100043854
(For model difference refer to section 2)

FCC ID..... : 2AVRV100043854V3

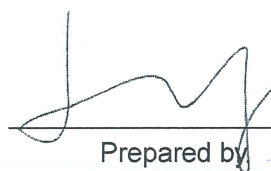
Measurement Standard..... : 47 CFR FCC Part 15, Subpart C (Section 15.247)

Receipt Date of Samples..... : July 21, 2022

Date of Tested..... : July 21, 2022 to August 04, 2022

Date of Report..... : August 12, 2022

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.



Prepared by

Jenny Liu / Project Engineer



Approved by

Iori Fan / Authorized Signatory

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Revision History

Report Number	Description	Issued Date
NTC2207281FV00	Initial Issue	2022-08-12

1. Summary of Test Result

FCC Rules	Description of Test	Result	Remarks
§15.247(a)(1)	Channel Separation test	PASS	---
§15.247(a)(1)	20dB Bandwidth	PASS	---
§15.247(a)(1)(iii)	Hopping Channel Number	PASS	---
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	PASS	---
§15.247(b)	Max Peak output Power test	PASS	---
§15.247(d)	Band edge test	PASS	---
§15.207 (a)	AC Power Conducted Emission	PASS	---
§15.247(d), §15.209, §15.205	Radiated Emission	PASS	---
§15.203	Antenna Requirement	PASS	---
§15.247(d)	Conducted Spurious Emission	PASS	---

2. General Description of EUT

Product Information	
Product name:	CD Boombox
Main Model Name:	AARD100043854
Additional Model Name:	AAGRY100043854
Model Difference:	These models have the same circuitry, electrical mechanical, PCB Layout and physical construction. The differences are the model number and appearance (For silk printing and color only) due to marketing purpose.
S/N:	2207-3562
Brand Name	ONN
Hardware version:	Not stated
Software version:	Not stated
Rating:	AC 100-240V, 50/60Hz, 13W DC 9V come from 1.5V Size "C" Battery*6
Classification:	Class B
Typical arrangement:	Table-top
I/O Port:	Reference the user's manual
Accessories Information	
Adapter:	N/A
Cable:	Power cord: 1.5m, unshielded, undetachable
Other:	N/A
Additional Information	
Note:	According to the model difference, all tests were performed on model AARD100043854.
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification	
Bluetooth Version:	V5.0
Frequency Range:	2402-2480MHz
Modulation Type:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Number of Channel:	79 (refer to following channel list for details)
Channel Space:	1MHz
Antenna Type:	PCB antenna
Antenna Gain:	0 dBi (Declared by manufacturer)
Note:	The EUT does not support Bluetooth Low Energy feature in accordance with the manufacturer declaration.

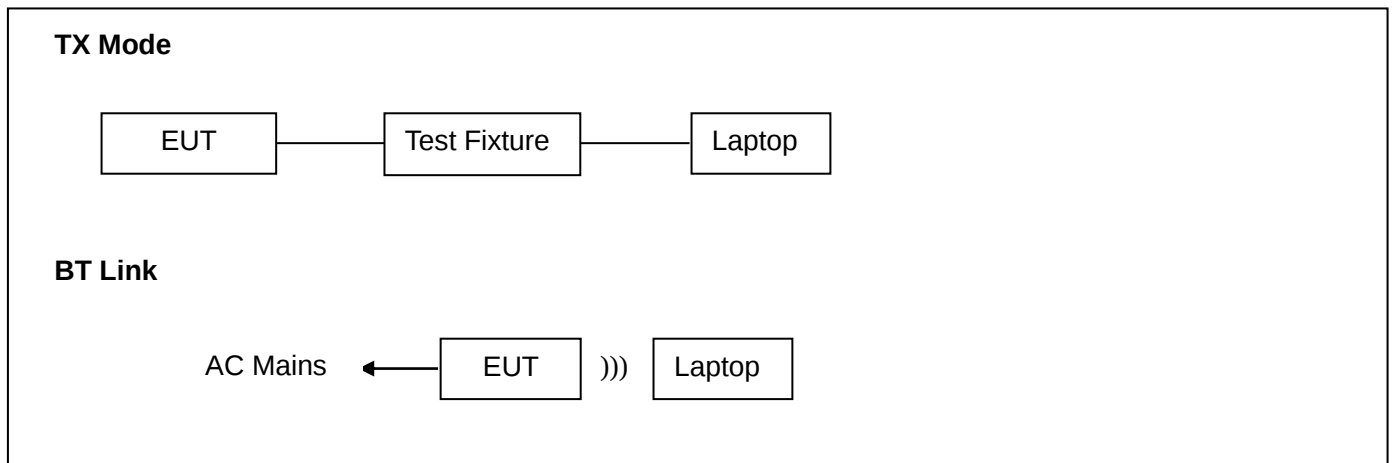
Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461	---	---

3. Test Channels and Modes Detail

No.	Mode	Channel	Frequency (MHz)	Modulation
1	TX	Hopping	2402-2480	GFSK/ π /4-DQPSK /8DPSK
2	TX	Low	2402	GFSK/ π /4-DQPSK /8DPSK
3	TX	Mid	2441	GFSK/ π /4-DQPSK /8DPSK
4	TX	High	2480	GFSK/ π /4-DQPSK /8DPSK
5.	BT Link	---	---	---

Note: TX mode means that the EUT was programmed to be in continuously transmitting mode.

4. Configuration of EUT



5. Modification of EUT

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

6. Description of Support Device

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.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Laptop	DELL	VOSTR03400	H3K2XA01	Power cord, 1.8m, unshielded	Provided by the lab
2.	Power supply (Laptop)	DELL	HA45NM140	---		Provided by the lab
3.	Test fixture	---	---	---	----	Provided by manufacturer

No.	Test Software	Modulation	Power Setting
1.	FCC_assist_1.0.2.2	GFSK	10
2.		$\pi/4$ -DQPSK	
3.		8DPSK	

7. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

8. Applicable Standards and References

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

Test Standards:

47 CFR Part 15, Subpart C, 15.247

ANSI C63.10-2013

References Test Guidance:

DTS KDB 558074 D01 15.247 Meas Guidance v05r02

Remark:

The EUT has also been tested and complied with the requirements of FCC Part 15, Subpart C, recorded in a separate test report.

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	Channel Separation test	1	AC 120V 60Hz	Sean	See note ¹
2.	20dB Bandwidth	2-4	AC 120V 60Hz	Sean	See note ¹
3.	Hopping Channel Number	1	AC 120V 60Hz	Sean	See note ¹
4.	Time of Occupancy (Dwell Time)	1	AC 120V 60Hz	Sean	See note ¹
5.	Max Peak output Power test	2-4	AC 120V 60Hz	Sean	See note ¹
6.	Band edge test	1-4	AC 120V 60Hz	Sean	See note ¹
7.	AC Power Conducted Emission	5	AC 120V 60Hz AC 240V 50Hz	Sean	See note ¹
8.	Radiated Emission	1-5	AC 120V 60Hz AC 240V 50Hz DC 9V	Sean	See note ¹
9.	Antenna Requirement	---	---	---	---
10.	Conducted Spurious Emission	1-4	AC 120V 60Hz	Sean	See note ¹

Note:

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35℃, 30~70%, 86~106kPa
2. Only the worst case was recorded in this report.

11. Measurement Uncertainty

No.	Test Item	Frequency	Uncertainty	Remarks
1.	Conducted Emission	150KHz ~ 30MHz	±3.04dB	---
2.	Radiated Emission Test	9kHz ~ 30MHz	±5.04dB	
		30MHz ~ 1GHz	±5.04dB	---
		1GHz ~ 18GHz	±5.23dB	---
		18GHz ~ 40GHz	±5.23dB	---
3.	RF Conducted Test	10Hz ~ 40GHz	±0.78dB	---
4.	Occupied Channel Bandwidth	---	±1.42 x10 ⁻⁴ % MHz	---

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainty levels above are estimated and calculated according to CISPR 16-4-2.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

12. Sample Calculations

Conducted Emission						
Freq. (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.1620	38.50	10.60	49.10	65.36	-16.26	QP
Where, Freq. = Emission frequency in MHz Reading Level = Spectrum Analyzer/Receiver Reading Corrector Factor = Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation Measurement = Reading + Corrector Factor Limit = Limit stated in standard Margin = Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak						

Radiated Spurious Emissions and Restricted Bands						
Freq. (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
65.890	33.10	-7.90	25.20	40.00	-14.80	QP
Where, Freq. = Emission frequency in MHz Reading Level = Spectrum Analyzer/Receiver Reading Corrector Factor = Antenna Factor + Cable Loss - Pre-amplifier Measurement = Reading + Corrector Factor Limit = Limit stated in standard Over = Margin, which calculated by Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak						

Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.

13. Test Items and Results

13.1 Conducted Emissions Measurement

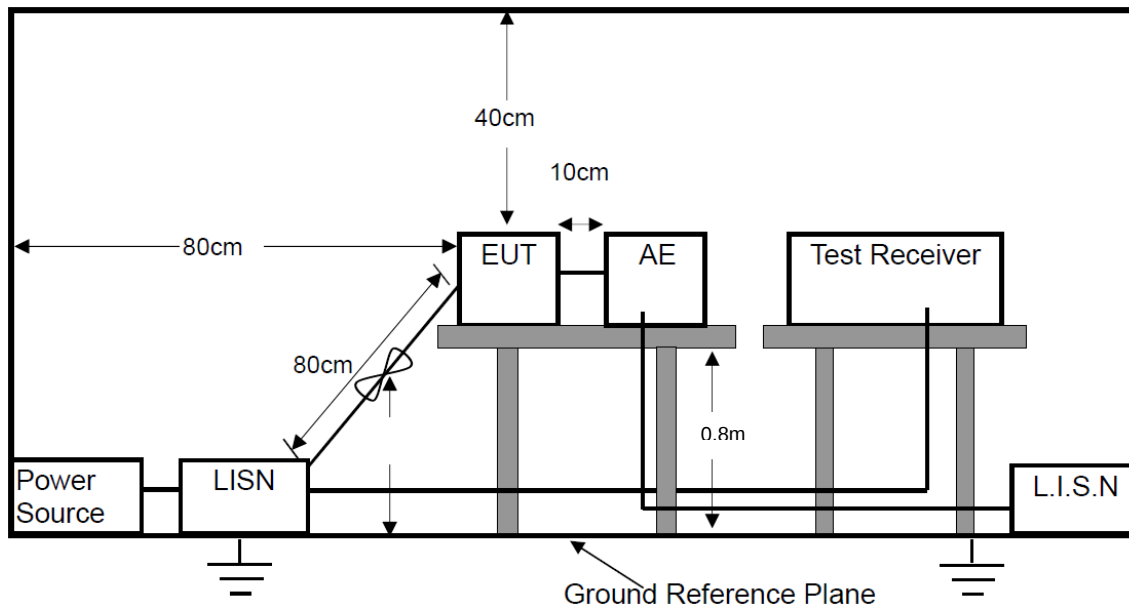
LIMIT

According to the requirements of FCC PART 15.207, the limits are as follows:

Frequency (MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

Note: 1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
2. The lower limit shall apply at the transition frequencies.
3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. All I/O cables and support devices were positioned as per ANSI C63.10.
- c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- d. Connect all support devices to the other LISN and AAN, if needed.
- e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

TEST RESULTS

PASS

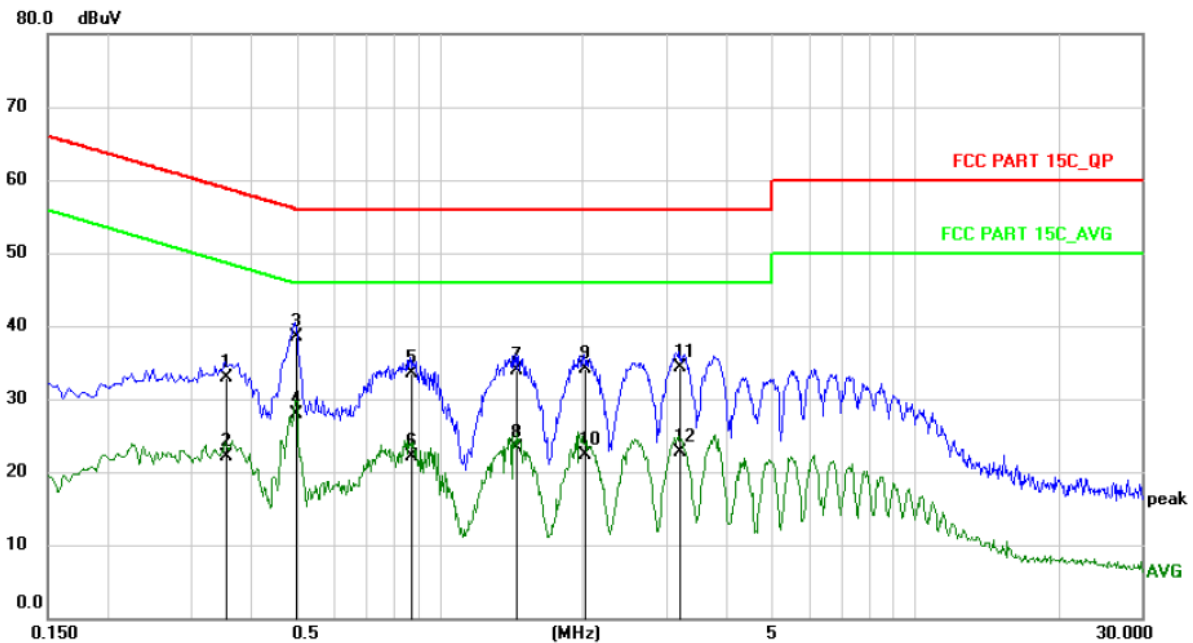
Please refer to the following pages.

M/N: AARD100043854	Testing Voltage: AC 240V/50Hz
Phase: L1	Detector: QP & AVG
Test Mode: 5	

Conducted Emission Measurement

Date: 2022/8/2

Time: 10:11:25



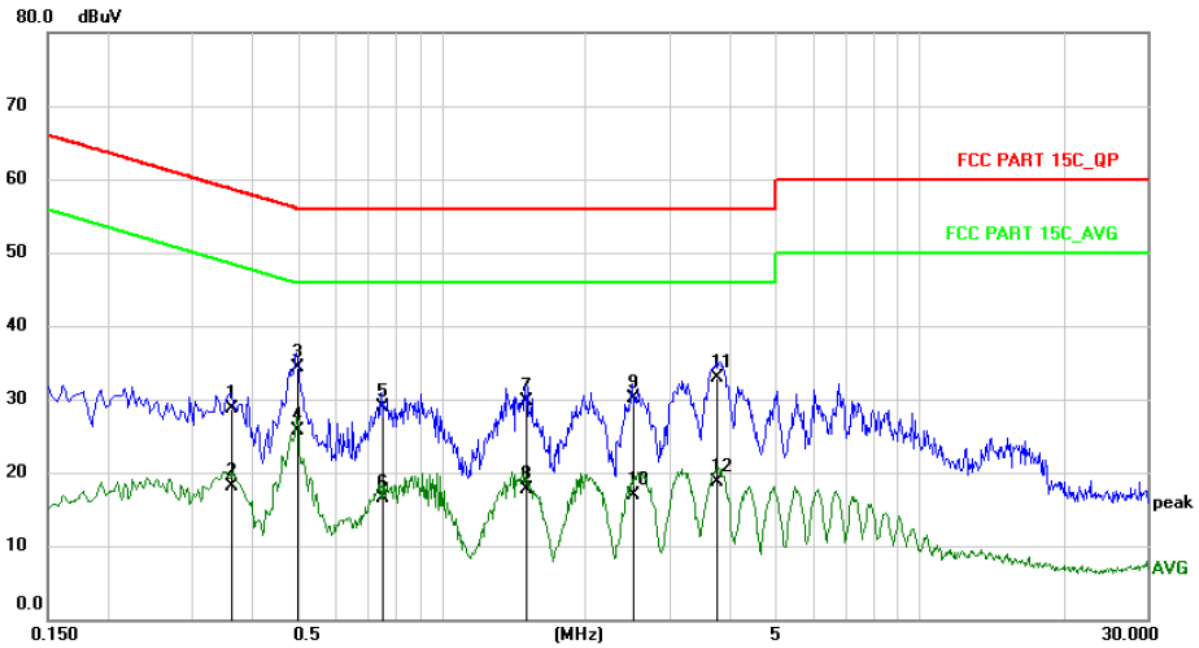
No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.3539	22.39	10.61	33.00	58.87	-25.87	QP	
2	0.3539	11.49	10.61	22.10	48.87	-26.77	AVG	
3 *	0.4980	27.87	10.63	38.50	56.03	-17.53	QP	
4	0.4980	17.27	10.63	27.90	46.03	-18.13	AVG	
5	0.8700	22.92	10.68	33.60	56.00	-22.40	QP	
6	0.8700	11.52	10.68	22.20	46.00	-23.80	AVG	
7	1.4460	23.30	10.70	34.00	56.00	-22.00	QP	
8	1.4460	12.60	10.70	23.30	46.00	-22.70	AVG	
9	2.0139	23.40	10.70	34.10	56.00	-21.90	QP	
10	2.0139	11.70	10.70	22.40	46.00	-23.60	AVG	
11	3.1979	23.69	10.71	34.40	56.00	-21.60	QP	
12	3.1979	12.09	10.71	22.80	46.00	-23.20	AVG	

M/N: AARD100043854	Testing Voltage: AC 240V/50Hz
Phase: N	Detector: QP & AVG
Test Mode: 5	

Conducted Emission Measurement

Date: 2022/8/2

Time: 10:16:52



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.3619	18.19	10.61	28.80	58.68	-29.88	QP	
2	0.3619	7.59	10.61	18.20	48.68	-30.48	AVG	
3	0.4980	23.67	10.63	34.30	56.03	-21.73	QP	
4 *	0.4980	15.07	10.63	25.70	46.03	-20.33	AVG	
5	0.7500	18.34	10.66	29.00	56.00	-27.00	QP	
6	0.7500	5.94	10.66	16.60	46.00	-29.40	AVG	
7	1.5020	19.10	10.70	29.80	56.00	-26.20	QP	
8	1.5020	7.00	10.70	17.70	46.00	-28.30	AVG	
9	2.5100	19.40	10.70	30.10	56.00	-25.90	QP	
10	2.5100	6.30	10.70	17.00	46.00	-29.00	AVG	
11	3.7740	22.29	10.71	33.00	56.00	-23.00	QP	
12	3.7740	7.99	10.71	18.70	46.00	-27.30	AVG	

13.2 Radiated Spurious Emissions and Restricted Bands Measurement

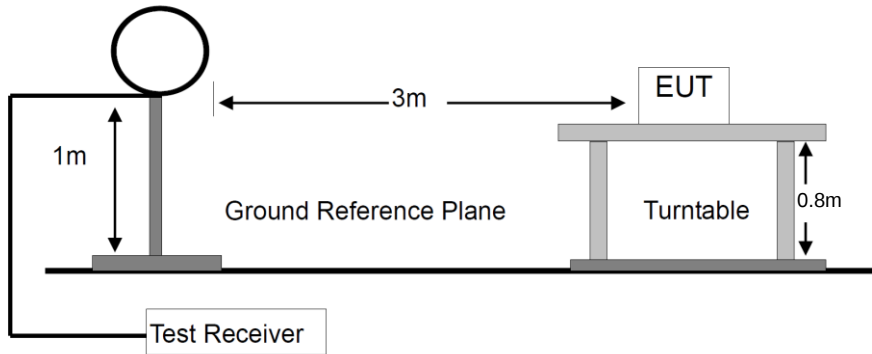
LIMIT

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209)
		$\mu\text{V/m}$
0.009 ~ 0.490	300	$2400/F(\text{kHz})$
0.490 ~ 1.705	30	$24000/F(\text{kHz})$
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

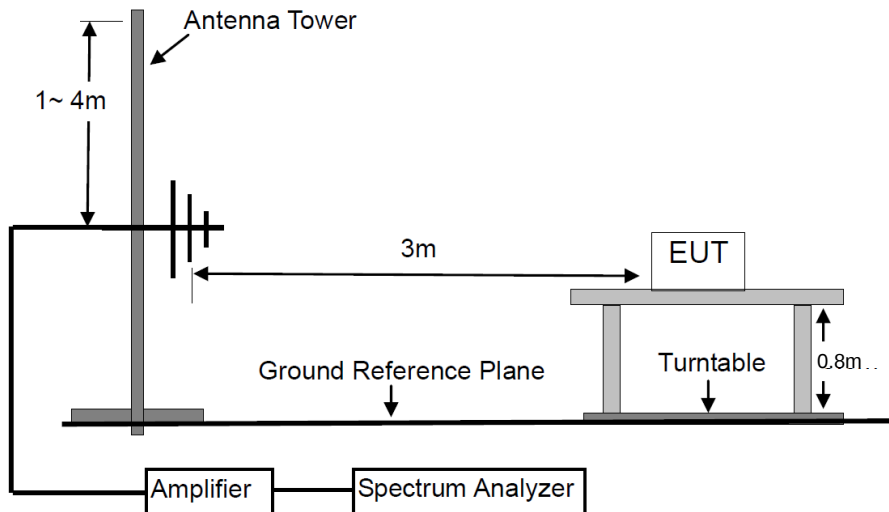
- Remark:
- (1) Emission level (dB) μV = $20 \log$ Emission level $\mu\text{V/m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 - (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
 - (5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

BLOCK DIAGRAM OF TEST SETUP

For Radiated Emission below 30MHz



For Radiated Emission 30-1000MHz



For Radiated Emission Above 1000MHz.