



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

TEST REPORT	
DISCIPLINE: ELECTRONICS TESTING	
GROUP: EMC TEST FACILITY	
TEST REPORT NUMBER	UFT 2226IND168-1-A1
TEST REPORT ISSUE DATE	4 June 2024
TEST REPORT VERSION	1.01
MANUFACTURER	Tessolve
EUT NAME	DRMX_M.2
EUT MODEL	M.2-M-Key
EUT PART NUMBER / PRODUCT CODE	NA
CONDITION OF EUT WHEN RECEIVED	Good
DATE OF RECEIPT OF EUT	23 June 2022
TEST START DATE	23 June 2022 to 23 June 2022
TEST COMPLETION DATE	23 June 2022
VENUE OF TEST	Tarang Labs – EMC
ISSUED TO: NAME AND CONTACT INFORMATION OF CUSTOMER	Kinara, Inc. 2445 Augustine Drive, Suite 150. Santa Clara, CA 95054
ISSUED BY: NAME AND ADDRESS OF TEST LABORATORY	Tarang Labs, Wipro Limited Sy. No. 69P,71/4P,78/8AP,134P,76P,77P,80P,70P, 79/1P, Unit 1, Sarjapur Road, Doddakannelli Village, Varthur Hobli, Bengaluru (Bangalore) Rural, Karnataka, 560035 Tel: +91-80-30292929 Fax: +91-80-30298200 Email: tarang-planet@wipro.com Web: www.wipro.com
AMENDMENT TO REPORT	UFT 2226IND172-1 v1.0

No model number and Serial number on EUT, the model and serial number details are mentioned based on information provided by customer.



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

AMENDMENT HISTORY

Amendment Number	Amendment Date	Author of Amendment	Previous Report Version	Previous Report Date
01	03 Jun 2024	Sreevanya C	1.0	11 Dec 2023
Amendment Details	Applicant details are modified in first page and section 1.0 based on customer request.			



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

TABLE OF CONTENTS

1	TEST REPORT SUMMARY	6
2	GENERAL INFORMATION	8
2.1	ACCREDITATION DETAILS	8
2.2	MEASUREMENT UNCERTAINTY	8
3	INSTRUMENTATION AND CALIBRATION	9
3.1	TEST AND MEASURING EQUIPMENT	9
3.2	TEST EQUIPMENT USED	9
3.3	TEST SOFTWARE USED	9
4	EUT INFORMATION	10
4.1	DESCRIPTION OF THE EUT	10
4.2	SOFTWARE AND FIRMWARE DETAILS	10
5	TEST DETAILS	11
5.1	EUT AND TEST SETUP	11
5.1.1	<i>EUT CONFIGURATION DURING TEST</i>	<i>11</i>
5.1.2	<i>TEST SETUP DETAILS</i>	<i>11</i>
5.1.3	<i>ACCESSORIES/ INTERFACES AND CABLE DETAILS</i>	<i>11</i>
5.2	TEST RESULT AND TEST SETUP PHOTOS	12
5.2.1	<i>RADIATED EMISSIONS TEST</i>	<i>12</i>
5.2.2	<i>CONDUCTED EMISSIONS TEST</i>	<i>24</i>
	ANNEXURE I: EUT AND ACCESSORIES PHOTOGRAPHS	33
	ANNEXURE II: ANY OTHER ADDITIONAL INFORMATION	37
	ANNEXURE III: ACRONYMS	38



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

LIST OF FIGURES

FIGURE 1: BLOCK DIAGRAM OF THE EUT SETUP	11
FIGURE 2: SAMPLE RE TEST SETUP FOR TABLETOP EQUIPMENT AT 3METERS DISTANCE FROM 30MHZ TO 1GHZ	13
FIGURE 3: SAMPLE RE TEST SETUP FOR TABLETOP EQUIPMENT AT 3METERS DISTANCE FROM 1GHZ TO 4GHZ	14
FIGURE 4: RE GRAPH USING PEAK DETECTOR ON HORIZONTAL POLARIZATION FROM 30MHZ TO 200MHZ	16
FIGURE 5: RE GRAPH USING PEAK DETECTOR ON VERTICAL POLARIZATION FROM 30MHZ TO 200MHZ.....	16
FIGURE 6: RE GRAPH USING PEAK DETECTOR ON HORIZONTAL POLARIZATION FROM 200MHZ TO 1GHZ	17
FIGURE 7: RE GRAPH USING PEAK DETECTOR ON VERTICAL POLARIZATION FROM 200MHZ TO 1GHZ.....	18
FIGURE 8: RE GRAPH USING AVERAGE DETECTOR ON HORIZONTAL POLARIZATION FROM 1GHZ TO 4GHZ	19
FIGURE 9: RE GRAPH USING AVERAGE DETECTOR ON VERTICAL POLARIZATION FROM 1GHZ TO 4GHZ.....	19
FIGURE 10: PHOTOGRAPH OF RE TEST SETUP FROM 30MHZ TO 200MHZ -HORIZONTAL POLARIZATION.....	20
FIGURE 11: PHOTOGRAPH OF RE TEST SETUP FROM 30MHZ TO 200MHZ-VERTICAL POLARIZATION.....	21
FIGURE 12: PHOTOGRAPH OF RE TEST SETUP FROM 200MHZ TO 1GHZ -HORIZONTAL POLARIZATION.....	21
FIGURE 13: PHOTOGRAPH OF RE TEST SETUP FROM 200MHZ TO 1GHZ -VERTICAL POLARIZATION	22
FIGURE 14: PHOTOGRAPH OF RE TEST SETUP FROM 1GHZ TO 4GHZ -HORIZONTAL POLARIZATION	22
FIGURE 15: PHOTOGRAPH OF RE TEST SETUP FROM 1GHZ TO 4GHZ-VERTICAL POLARIZATION	23
FIGURE 16: SAMPLE CE TEST SETUP FOR TABLETOP EQUIPMENT FROM 150KHZ TO 30MHZ.....	25
FIGURE 17: CE GRAPH USING PEAK DETECTOR FROM 150KHZ TO 30MHZ_ LINE.....	26
FIGURE 18: CE GRAPH USING PEAK DETECTOR FROM 150KHZ TO 30MHZ_ NEUTRAL	27
FIGURE 19: CE GRAPH USING AVERAGE DETECTOR FROM 150KHZ TO 30MHZ_ LINE	28
FIGURE 20: CE GRAPH USING AVERAGE DETECTOR FROM 150KHZ TO 30MHZ_ NEUTRAL	28
FIGURE 21: PHOTOGRAPH OF CE TEST SETUP ON POWER PORT	29
FIGURE 22: PHOTOGRAPH OF EUT	33
FIGURE 23: PHOTOGRAPH OF INTEL NUC MINI PC.....	33
FIGURE 24: PHOTOGRAPH OF POWER ADAPTER OF INTEL NUC MINI PC.....	34
FIGURE 25: PHOTOGRAPH OF TEST LAPTOP.....	34
FIGURE 26: PHOTOGRAPH OF TEST LAPTOP CHARGER.....	35
FIGURE 27: PHOTOGRAPH OF ETHERNET CABLE (CAT6) – 1	35
FIGURE 28: PHOTOGRAPH OF ETHERNET CABLE (CAT6) – 2	36



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

LIST OF TABLES

TABLE 1: LIST OF EQUIPMENT USED FOR RADIATED EMISSION TEST	9
TABLE 2: LIST OF EQUIPMENT USED FOR CONDUCTED EMISSION TEST	9
TABLE 3: LIST OF TEST SOFTWARE USED FOR TESTING	9
TABLE 4: LIST OF ACCESSORIES USED FOR TESTING	11
TABLE 5: LIST OF CABLES CONNECTED TO EUT	11
TABLE 6: RE QUASI-PEAK MEASUREMENT TABLE FROM 30MHZ TO 200MHZ	17
TABLE 7: RE PEAK MEASUREMENT TABLE FROM 200MHZ TO 1GHZ	18
TABLE 8: RE AVERAGE MEASUREMENT TABLE FROM 1GHZ TO 4GHZ	20
TABLE 9: CE QUASI-PEAK MEASUREMENT TABLE FROM 150KHZ TO 30MHZ_LINE AND NEUTRAL	27
TABLE 10: CE AVERAGE MEASUREMENT TABLE FROM 150KHZ TO 30MHZ_LINE AND NEUTRAL	29



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

1 TEST REPORT SUMMARY

Applicant	Kinara, Inc.
Manufacturer	Tessolve
EUT Name	DRMX_M.2
EUT Model/ Part Number	M.2-M-Key
EUT Serial Number	DRMX_M.2_01
Date of receipt of test item	23 June 2022
EUT Category/ Type of Equipment	Telecom/ Table top
EUT Rated Voltage	100 to 240V AC
EUT Rated Frequency	50Hz
EUT Rated Power	6Watts
EUT Rated Current	NA
EUT Operating Current (max)	NA
Date of Test	23 June 2022
Venue of Test	Tarang Labs-EMC

No model number and Serial number on EUT, the model and serial number details are mentioned based on information provided by customer.

Applicable Standard	Applicable Test	Frequency range/ Class	Applicable port	Results- Criterion
ANSI C63.4:2014 (CFR 47, FCC Part 15 B)	Radiated Emission	Frequency Range: 30MHz to 4GHz, Class B	Enclosure	PASS
ANSI C63.4:2014 (CFR 47, FCC Part 15 B)	Conducted Emission	Frequency Range: 150kHz to 30MHz, Class B	Power Port	PASS

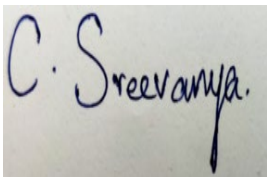
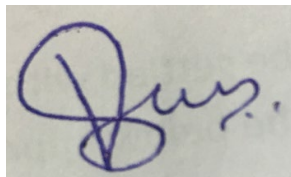
DRMX_M.2 was tested by Tarang Labs as per the standards that are listed in the table above. Based on the observations during the test and interpretations by Tarang labs, results have been indicated. The test results produced in this report shall apply only to the above sample that has been tested under the specific conditions and modes of testing as described in the report. Other similar equipment may not necessarily reproduce same result due to production tolerances and measurement uncertainties. Any measurement uncertainties listed in this report are for information purpose only.

The results shall stand invalid, in case there are any modifications / additions / removals to the hardware or software or end use atmosphere to the product tested. This report shall not be modified or in any way revised unless it is expressly permitted and endorsed by Tarang labs, through a duly authorized representative. Particulars on



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

Manufacturer / Supplier / Product configuration / performance criteria, given in this report, are based on the information given by the customer, along with test request. Tarang labs does not assume any responsibility for the correctness of such information for the above mentioned equipment under test.

Prepared by	Reviewed by	Approved by
 03 June 2024	 04 June 2024	 04 June 2024
EMC Test Engineer	Technical Lead	Functional Head Authorized Signatory



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

2 GENERAL INFORMATION

2.1 ACCREDITATION DETAILS

Following are the accreditation and listing details for Tarang labs

Accreditation / Listing body	Registration / Company / Certificate Number
National Accreditation Board for Testing and Calibration Laboratories (NABL)	Certificate No: TC-5992 https://nablwp.qci.org.in/CertificateScopenew?x=42U19wE23GF/yIqKwFmPng==
American Association for Laboratory Accreditation	Certificate No: 5148.01 https://customer.a2la.org/index.cfm?event=directory.detail&labPID=B9916002-D71A-48F9-9DF2-F1BB99D0086F
Telecommunication Engineering Centre (TEC)	Certificate no 1: TEC/MRA/CAB/IND-D/7-II Certificate no 2: TEC/MRA/CAB/IND-D/67 Certificate no 3: TEC/MRA/CAB/IND-D/7-I https://www.tec.gov.in/Labs-Designated-by-TEC
Directorate General of Aeronautical Quality Assurance (DGAQA)	Certificate No:1408/LAB/DGAQA/TECH-COORD/14 dated 31 JAN 2023

2.2 MEASUREMENT UNCERTAINTY

The following measurement uncertainties are applicable to the relevant tests that are mentioned below:

Name of the test	Measurement Uncertainty (dB)
Radiated Emission from 30 MHz to 200 MHz at 3metres distance	±4.60
Radiated Emission from 200 MHz to 1 GHz at 3metres distance	±4.73
Radiated Emission from 1 GHz to 4 GHz at 3metres distance	±3.50
Conducted Emission from 150 kHz to 30 MHz	±2.12



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

3 INSTRUMENTATION AND CALIBRATION

3.1 TEST AND MEASURING EQUIPMENT

The list of following measuring equipment used for this testing conforms to the applicable standards. Performance of all test and measuring equipment including any accessories are checked periodically to ensure accuracy.

3.2 TEST EQUIPMENT USED

Name of Equipment	Manufacturer	Model No.	Serial No.	Calibration Due
EMI Test Receiver	Rohde & Schwarz	ESW44	101744	31 Mar 2023
EMI Test Receiver	Rohde & Schwarz	ESR3	102073	21 Apr 2023
Bi-conical Antenna	Schwarz-beck Mess - Elektronik	VHBB 9124	9124-374	15 Sep 2022
Log- periodic Antenna	Schwarz-beck Mess - Elektronik	VUSLP 9111	9111-308	15 Sep 2022
Double ridge horn Antenna	ETS - Lindgren	3117	00218727	26 Sep 2023
Pre-amplifier	Rohde & Schwarz	SCU-01	100626	20 Apr 2023
Pre-amplifier	Rohde & Schwarz	SCU-18F	180085	07 Nov 2022

Table 1: List of equipment used for Radiated Emission test

Name of Equipment	Manufacturer	Model No.	Serial No.	Calibration Due
EMI Test Receiver	Rohde & Schwarz	ESR3	102073	21 Apr 2023
V-LISN	Schwarz-beck Mess - Elektronik	NSLK 8128	8128-243	20 Nov 2022
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100717	20 Feb 2023

Table 2: List of equipment used for Conducted Emission test

3.3 TEST SOFTWARE USED

Test Setup	Software Name	Software Developer	Software Version
Radiated Emissions	TDK Emissions Lab	TDK RF Solutions	10.93.0.4
Conducted Emissions	TDK Emissions Lab	TDK RF Solutions	10.93.0.4

Table 3: List of Test Software used for testing



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

4 EUT INFORMATION

4.1 DESCRIPTION OF THE EUT

Product Features:

1. Edge AI accelerator M.2 module.
2. 8Gb LPDDR4 memory stores user models.
3. Speed grades: 800 MHz
4. Deep Learning models performance.
5. Resnet 50-v1 latency: 10msec
6. Mobilenet-V1 latency: 1.8msec
7. PCIe Gen 3*4 interface.
8. Form Factor - M.2-2280(M-Key)

4.2 SOFTWARE AND FIRMWARE DETAILS

NA

5 TEST DETAILS

5.1 EUT AND TEST SETUP

5.1.1 EUT CONFIGURATION DURING TEST

1. Insert the DRM_X.M.2 Module into the Intel NUC Mini PC.
2. Connect the 19V DC adaptor to the mini PC and power on the PC.
3. Connect the Shielded Ethernet cable to the DUT and the test PC.
4. Open Command Prompt and run the test script.
5. Monitor the continuous pinging.

5.1.2 TEST SETUP DETAILS

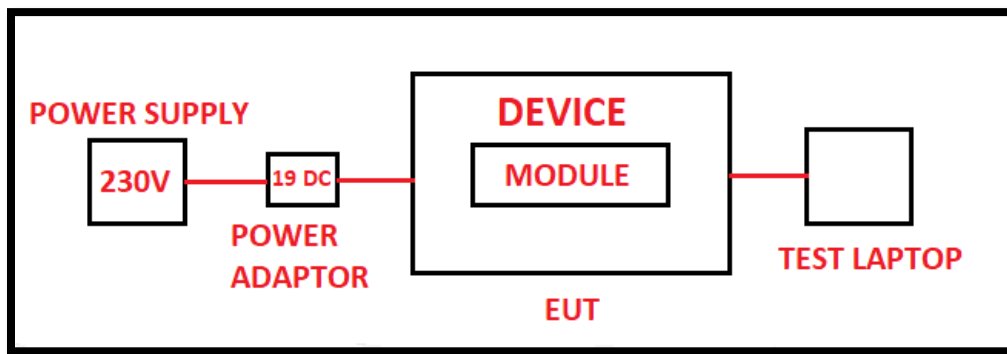


Figure 1: Block diagram of the EUT setup

5.1.3 ACCESSORIES/ INTERFACES AND CABLE DETAILS

S. No	Name of Accessories	Make	Model No	Serial No
1	Intel NUC Mini PC	Intel	BOXNUC7I7BNHL	G6BN81700ASS
2	FSP Intel NUC adaptor	Intel	FSP065-10AABA	141427-11
3	Test Laptop	Dell	P285	38223622190
4	Laptop Adaptor	Dell	HA65NM130	CN-OYNJSJ-CH200-84J-C9CD-AO2

Table 4: List of Accessories used for testing

S. No	Cable/ Name	No of Ports	Cable Color	Cable Length	Power/ Interconnection cable	Shielded/ Unshielded	Cable photos
1	Ethernet cable - CAT6	02	Gray	5.0	Interconnection Cable	Shielded	NA

Table 5: List of cables connected to EUT



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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5.2 TEST RESULT AND TEST SETUP PHOTOS

5.2.1 RADIATED EMISSIONS TEST

5.2.1.1 TEST SPECIFICATION

Test Standard	ANSI C63.4:2014 (CFR 47, FCC Part 15 B)	
Test Procedure	ANSI C63.4:2014	
Class/ Group	Class B	
Highest frequency generated/ used in the device/ on which the device operates	800MHz	
Frequency Range	30MHz to 1GHz	1GHz to 4GHz
Resolution Bandwidth	120kHz	1MHz
Video Bandwidth	500kHz	3MHz
Step size	40kHz	400kHz
Pre Scan Measurement Time	20 ms	20 ms
Final Measurement Time	1 second	1 second
Attenuation	10 dB	5 dB
Detector	Peak & Quasi-peak	Peak & Average
Test Distance	3 meters	3 meters
Polarization	Horizontal and Vertical	
EUT Type	Table Top	
Input Voltage	120 V AC	
Input Frequency	60 Hz	
Temperature	23.1 °C	
Relative Humidity	59.2 %	
Tested By	Nidheesh Krishnan K	
Test Date	23 June 2022	

5.2.1.2 DEVIATION FROM THE STANDARD

NA

5.2.1.3 LIMITS

Maximum permissible level of Radiated Emissions at 3 meters distance as per ANSI C63.4:2014 (CFR 47, FCC Part 15 B) is as shown below:

Frequency (Hz)	Quasi-peak limit (dB μ V/m)
30M to 88M	40.00
88M to 216M	43.52
216M to 960M	46.02
960M to 1000M	53.98

Maximum permissible level of Radiated Emissions at 3 meters distance as per ANSI C63.4:2014 (CFR 47, FCC Part 15 B) is as shown below:

Frequency (Hz)	Peak limit Class B (dB μ V/m)	Average limit Class B (dB μ V/m)
1G to 4G	53.98	73.98

5.2.1.4 TEST SETUP

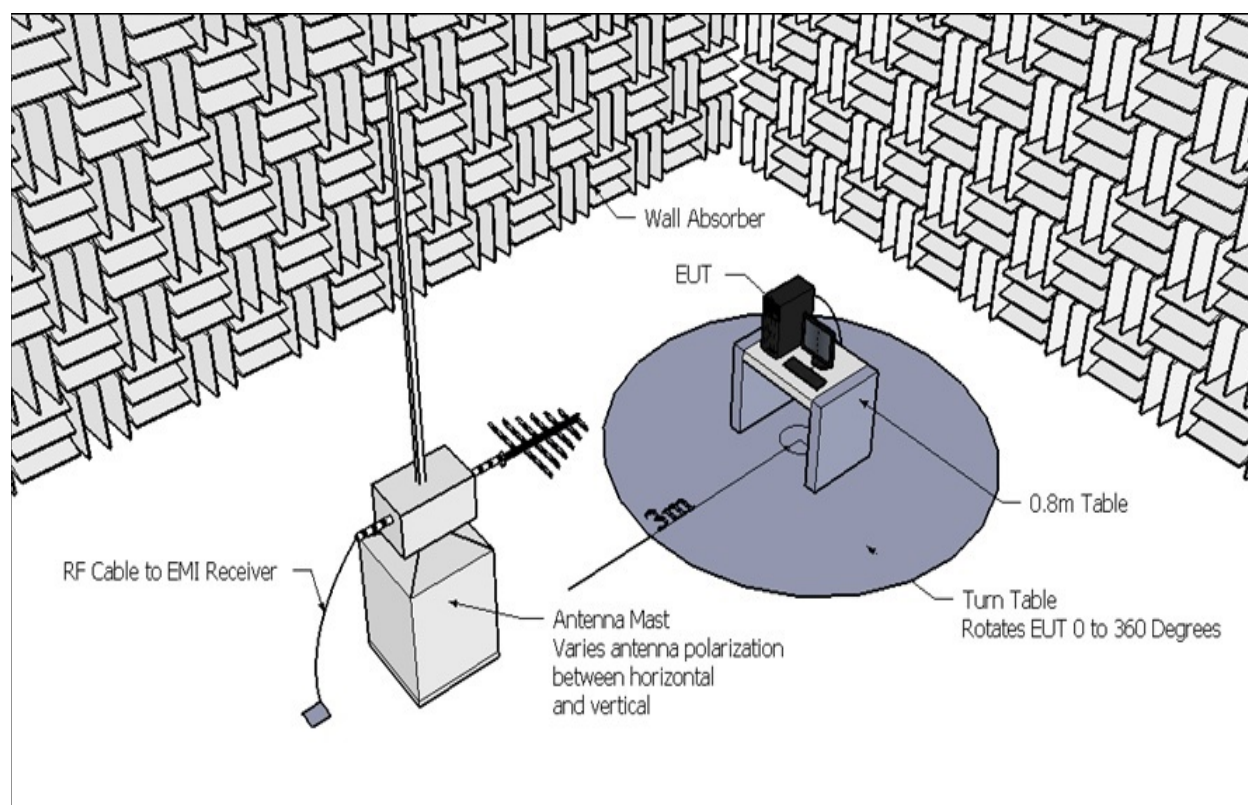


Figure 2: Sample RE test setup for tabletop equipment at 3meters distance from 30MHz to 1GHz

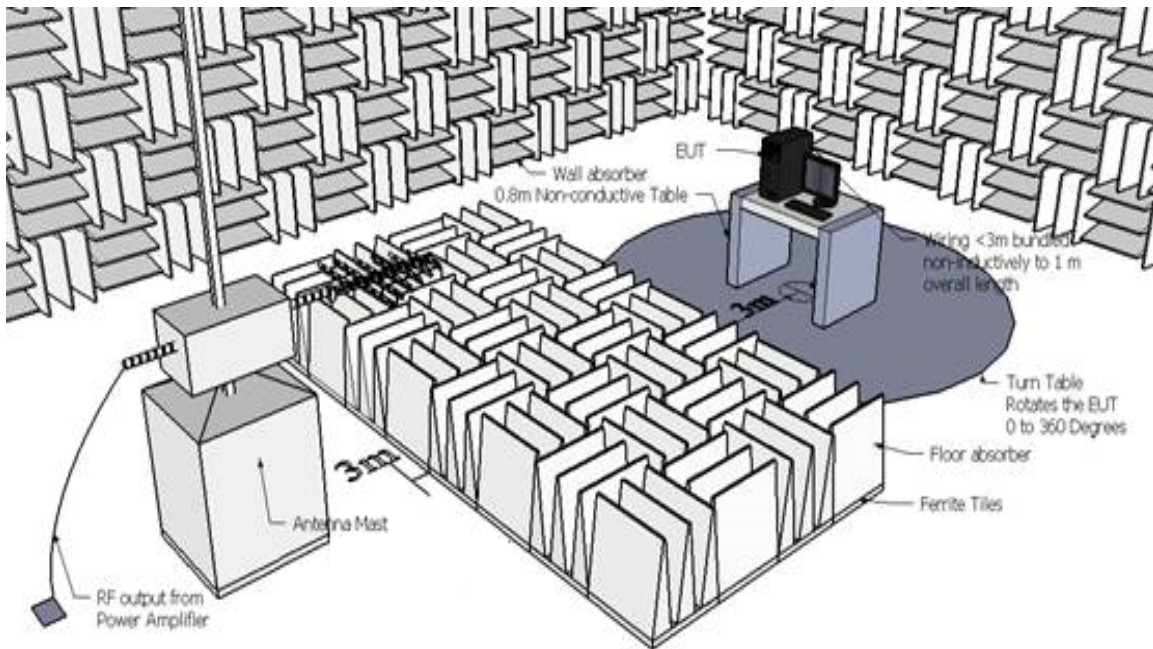


Figure 3: Sample RE test setup for tabletop equipment at 3meters distance from 1GHz to 4GHz

5.2.1.5 TEST PROCEDURE

The test procedure was in accordance with ANSI C63.4:2014.

30MHz to 1GHz:

The Table Top equipment was tested in a Semi-Anechoic chamber. The EUT was placed on non-conductive table of 0.8meter height which was in turn placed on a turn table to enable 0° to 360° rotation as per standard. The distance between the edge of the EUT and receiving antenna was 3meters. The receiving antenna was mounted on antenna mast to enable height variation from 1 to 4meters above the ground plane.

Pre-scan (Peak) was measured by varying the azimuth angle in 22.5° steps and antenna height from 1 to 4meters in 1meter steps, in both horizontal and vertical polarization of the antenna. The measurement was carried out in max-hold mode and maximum amplitude of radiated emissions from the EUT was plotted in the graph. The dominant peaks at various frequencies, closer to and above the limit line were identified using peak search option and listed. Quasi-peak measurement was carried out for the listed frequencies to get the maximized readings by rotating the turntable 0 to 360 degree and varying the antenna height from 1 to 4meters. The maximized reading was compared with the limit specified in the standard.



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

1GHz to 4GHz:

The Table Top equipment was tested in a Semi-Anechoic chamber. The EUT was placed on non-conductive table of 0.8meter height which was in turn placed on a turn table to enable 0° to 360° rotation as per standard. The distance between the edge of the EUT and receiving antenna was 3meters. The receiving antenna was mounted on antenna mast to enable height variation from 1 to 2meters above the ground plane.

Pre-scan (Peak & Average) was measured by varying the azimuth angle in 22.5° steps and antenna height fixed at 1m, in both horizontal and vertical polarization of the antenna. The measurement was carried out in max-hold mode and maximum amplitude of radiated emissions from the EUT was plotted in the graph. The dominant peaks at various frequencies, closer to and above the limit line were identified using peak search option and listed. Peak and Average measurement was carried out for the listed frequencies to get the maximized readings by rotating the turntable 0 to 360 degree and varying the antenna height from 1 to 2meters. The maximized reading was compared with the limit specified in the standard.

Formulas used to calculate the QP EMI and QP margins are as below.

- $QP\ EMI\ (dB\mu V/m) = QP\ Trace\ (dB\mu V) + Cable\ (dB) + Transducer\ (dB/m) - Preamp\ (dB)$
- $QP\ Margin\ (dB) = QP\ EMI\ (dB\mu V/m) - QP\ Limit\ (dB\mu V/m)$

Formula used for calculating the Peak EMI and margin are as listed below.

- $Peak\ EMI\ (dB\mu V/m) = Peak\ Trace\ (dB\mu V) + Cable\ (dB) + Transducer\ (dB/m) - Preamp\ (dB)$
- $Peak\ Margin\ (dB) = Peak\ EMI\ (dB\mu V/m) - Peak\ Limit\ (dB\mu V/m)$

Formula used for calculating the AVG EMI and margin are as listed below.

- $AVG\ EMI\ (dB\mu V/m) = AVG\ Trace\ (dB\mu V) + Cable\ (dB) + Transducer\ (dB/m) - Preamp\ (dB)$
- $AVG\ Margin\ (dB) = AVG\ EMI\ (dB\mu V/m) - AVG\ Limit\ (dB\mu V/m)$



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

5.2.1.6 MEASUREMENT DATA

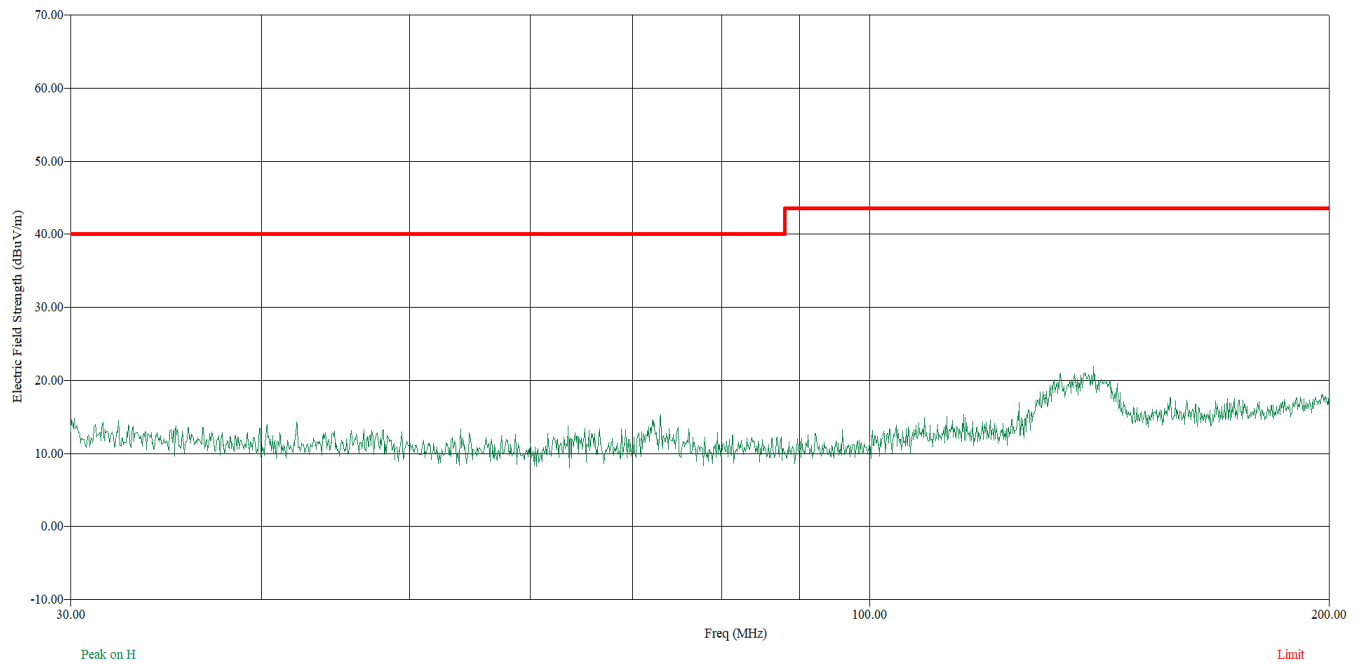


Figure 4: RE graph using Peak detector on Horizontal polarization from 30MHz to 200MHz

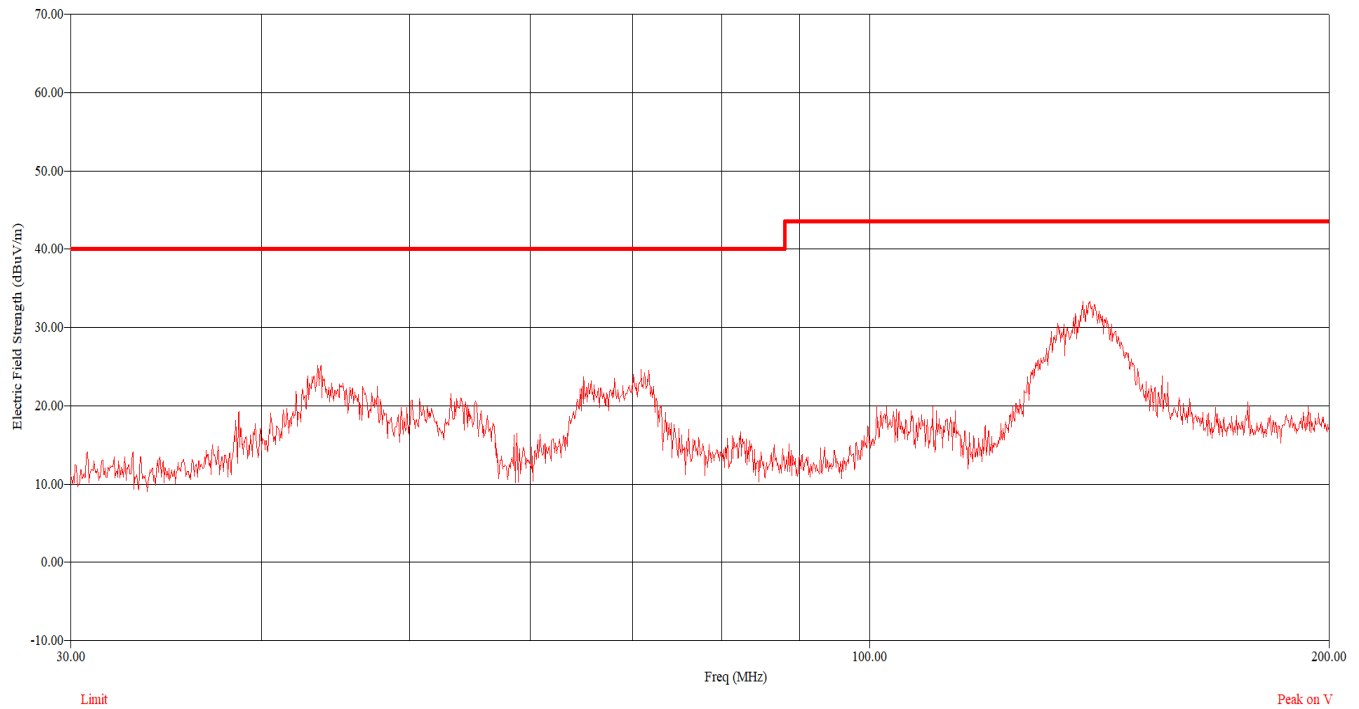


Figure 5: RE graph using Peak detector on Vertical polarization from 30MHz to 200MHz



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

Freq (MHz)	Freq (Max) (MHz)	Pol	EUT Ttbt Agl (deg)	Twr Ht (cm)	(QP) Trace (dBuV)	Cable (dB)	Transducer (dB/m)	Preamp (dB)	(QP) EMI (dBuV/m)	Limit (dBuV/m)	(QP) Margin (dB)
43.760	43.891	V	7.20	121.10	44.48	2.78	16.52	43.42	20.37	40.00	-19.63
65.000	65.187	V	207.20	191.80	46.96	3.21	14.98	43.39	21.76	40.00	-18.24
70.880	70.850	V	179.30	120.60	49.08	3.30	14.89	43.38	23.88	40.00	-16.12
71.720	71.646	V	168.90	120.00	48.89	3.30	14.90	43.38	23.71	40.00	-16.29
73.000	72.818	H	52.20	256.80	35.93	3.30	15.50	43.38	11.36	40.00	-28.64
125.360	125.349	H	26.90	261.60	32.76	4.19	17.04	43.38	10.61	43.52	-32.91
133.320	133.225	H	297.10	280.70	40.24	4.30	17.50	43.38	18.65	43.52	-24.87
138.040	138.217	V	351.90	145.00	51.25	4.36	17.94	43.39	30.17	43.52	-13.35
140.240	140.188	H	309.40	143.70	40.71	4.38	17.80	43.39	19.51	43.52	-24.01
144.160	144.271	V	352.40	105.30	48.99	4.43	18.33	43.39	28.36	43.52	-15.16
145.320	145.290	H	276.00	143.20	39.65	4.45	17.90	43.39	18.60	43.52	-24.92
157.440	157.403	H	293.10	403.30	32.72	4.59	18.10	43.40	12.00	43.52	-31.52

Table 6: RE Quasi-peak measurement table from 30MHz to 200MHz

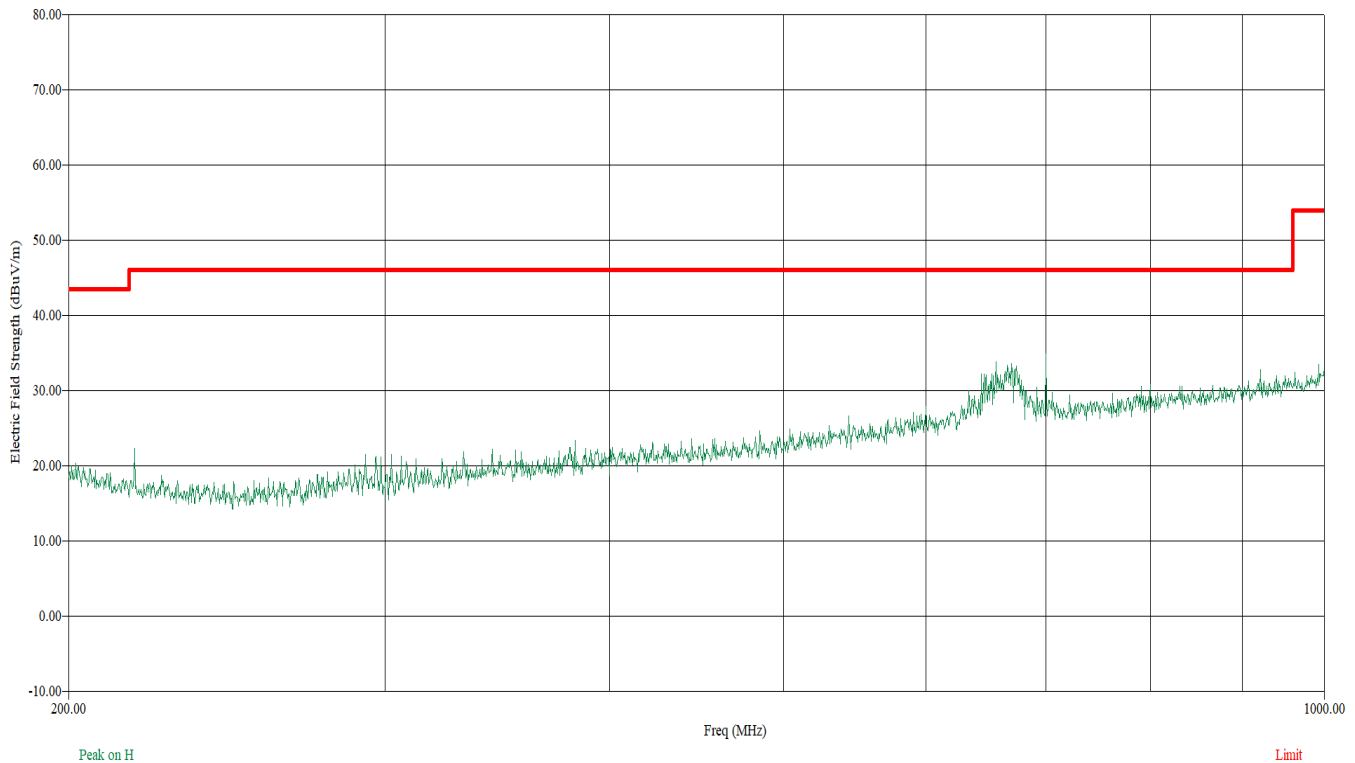


Figure 6: RE graph using Peak detector on Horizontal polarization from 200MHz to 1GHz



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

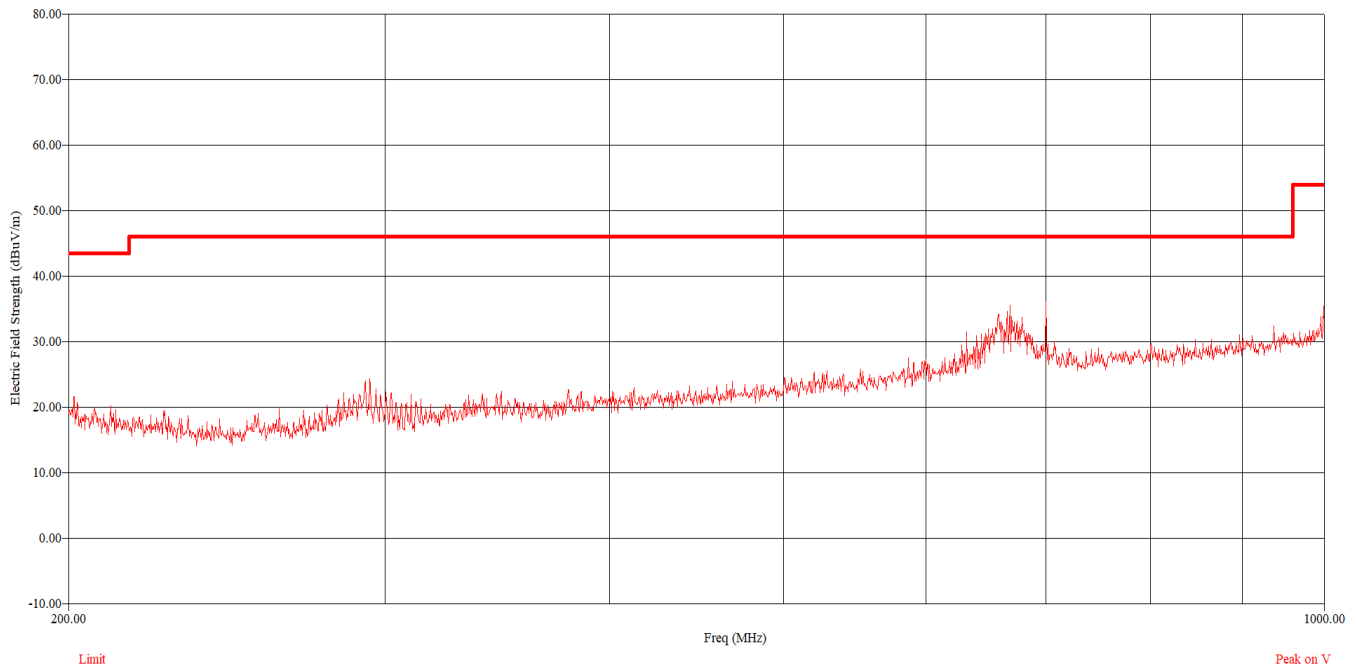


Figure 7: RE graph using Peak detector on Vertical polarization from 200MHz to 1GHz

Freq (MHz)	Freq (Max) (MHz)	Pol	EUT Ttbt Agl (deg)	Twr Ht (cm)	(QP) Trace (dBuV)	Cable (dB)	Transducer (dB/m)	Preamp (dB)	(QP) EMI (dBuV/m)	Limit (dBuV/m)	(QP) Margin (dB)
294.240	294.207	V	59.20	240.30	40.37	5.86	19.60	43.27	22.56	46.02	-23.46
543.480	543.418	H	191.70	403.10	30.93	7.82	24.80	42.84	20.71	46.02	-25.31
656.280	656.154	H	334.50	356.70	39.79	8.49	26.20	42.56	31.92	46.02	-14.10
658.560	658.590	V	26.40	212.50	36.09	8.50	25.76	42.55	27.79	46.02	-18.23
665.920	666.059	V	338.60	216.70	38.59	8.54	25.80	42.54	30.39	46.02	-15.63
666.320	666.161	H	327.70	332.90	40.29	8.54	26.30	42.54	32.60	46.02	-13.42
668.240	668.018	V	338.40	216.60	38.37	8.55	25.80	42.53	30.19	46.02	-15.83
669.760	669.763	H	326.60	315.10	41.27	8.56	26.30	42.53	33.60	46.02	-12.42
700.040	700.018	H	135.10	288.70	40.80	8.70	26.80	42.47	33.83	46.02	-12.19
700.040	699.999	V	29.80	214.50	42.82	8.70	26.40	42.47	35.45	46.02	-10.57
992.880	992.894	H	64.20	260.60	30.21	10.36	29.60	42.16	28.01	53.98	-25.97
998.760	998.919	V	41.60	219.00	32.08	10.39	29.10	42.13	29.44	53.98	-24.54

Table 7: RE Peak measurement table from 200MHz to 1GHz



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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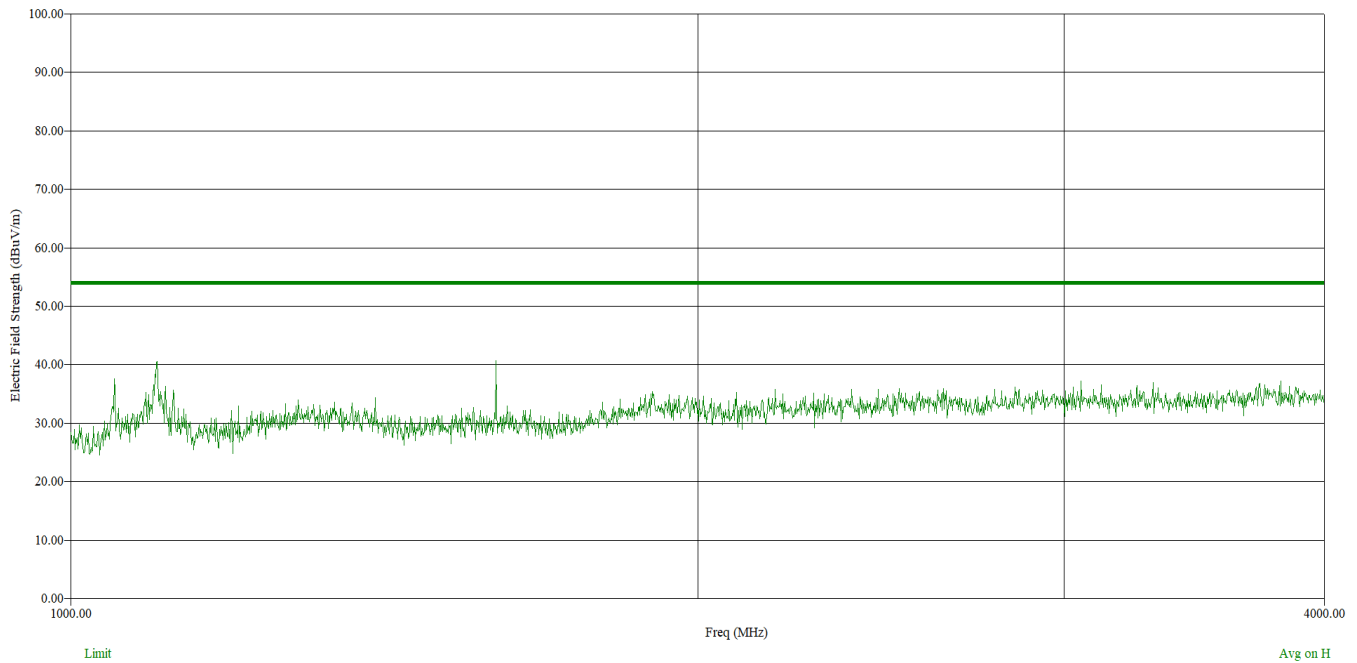


Figure 8: RE graph using Average detector on Horizontal polarization from 1GHz to 4GHz

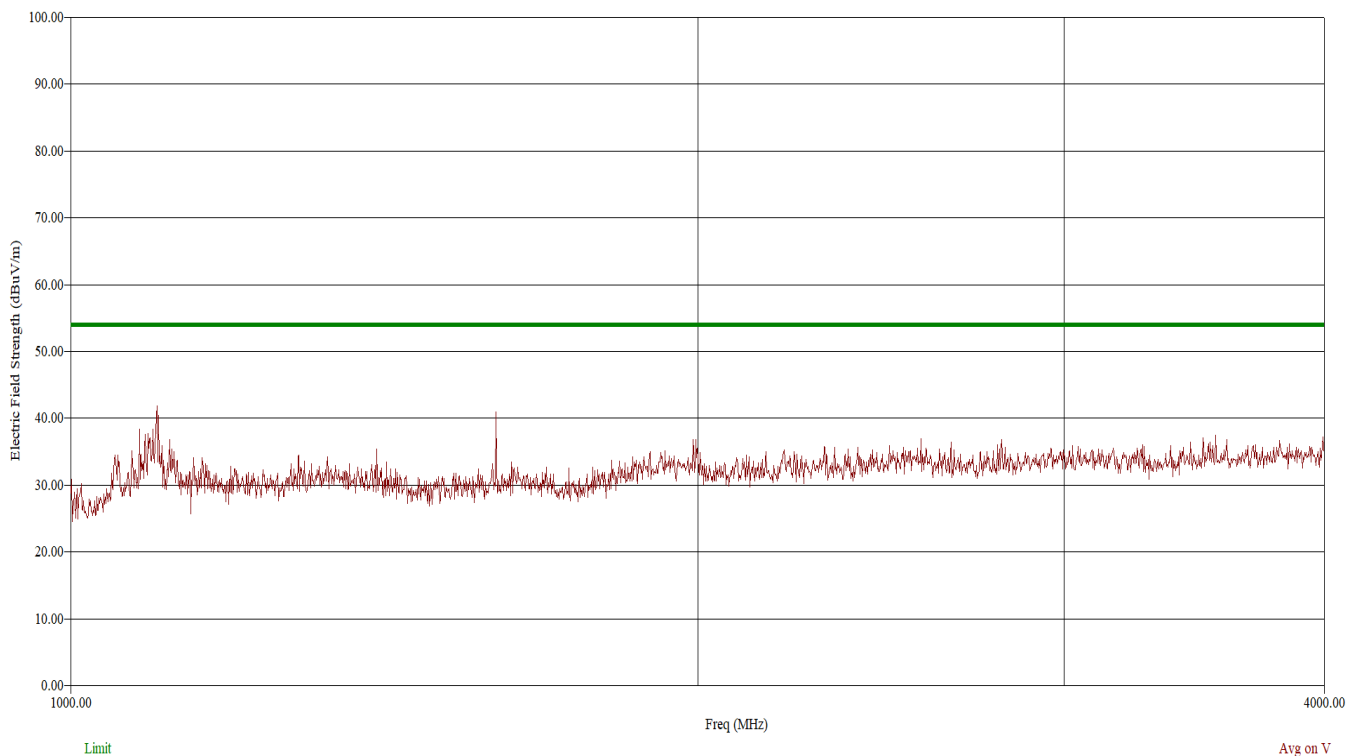


Figure 9: RE graph using Average detector on Vertical polarization from 1GHz to 4GHz

TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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Freq (MHz)	Freq (Max) (MHz)	Pol	EUT Tilt Angl (deg)	Twr Ht (cm)	(AVG) Trace (dBuV)	Cable (dB)	Transducer (dB/m)	Preamp (dB)	(AVG) EMI (dBuV/m)	Limit (dBuV/m)	(AVG) Margin (dB)
1078.800	1100.560	V	193.40	154.30	48.00	2.07	28.28	41.73	36.61	53.98	-17.37
1099.600	1100.480	H	153.00	159.60	38.77	2.07	28.28	41.73	27.39	53.98	-26.59
1100.000	1100.220	H	149.80	202.10	40.01	2.07	28.28	41.73	28.63	53.98	-25.35
1100.000	1099.890	V	194.20	158.40	49.58	2.07	28.28	41.73	38.19	53.98	-15.79
1101.600	1100.280	V	193.70	107.10	49.11	2.07	28.28	41.73	37.73	53.98	-16.25
1600.000	1586.010	H	84.50	185.60	33.28	2.47	30.13	41.83	24.05	53.98	-29.93
1600.000	1599.680	V	177.40	106.20	45.85	2.48	30.17	41.83	36.67	53.98	-17.32
1996.700	1953.950	V	64.40	116.50	34.56	2.70	31.18	41.88	26.57	53.98	-27.41

Table 8: RE Average measurement table from 1GHz to 4GHz

5.2.1.7 TEST SETUP PHOTOS

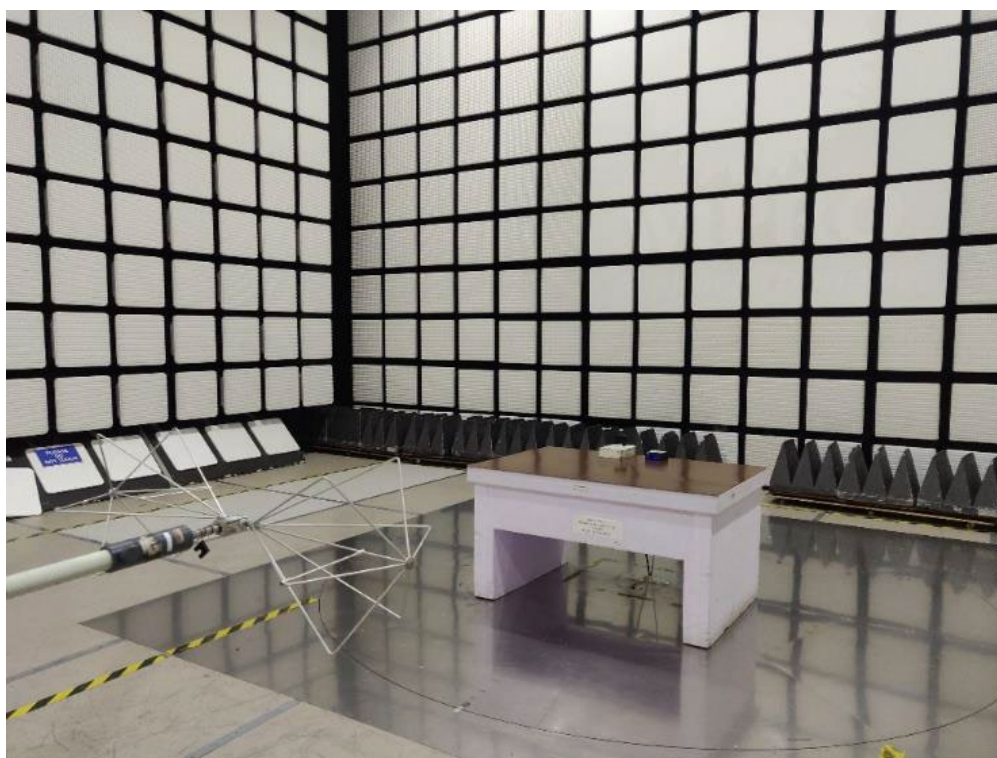


Figure 10: Photograph of RE test setup from 30MHz to 200MHz_Horizontal polarization



Figure 11: Photograph of RE test setup from 30MHz to 200MHz_Vertical polarization



Figure 12: Photograph of RE test setup from 200MHz to 1GHz_Horizontal polarization



Figure 13: Photograph of RE test setup from 200MHz to 1GHz_Vertical polarization

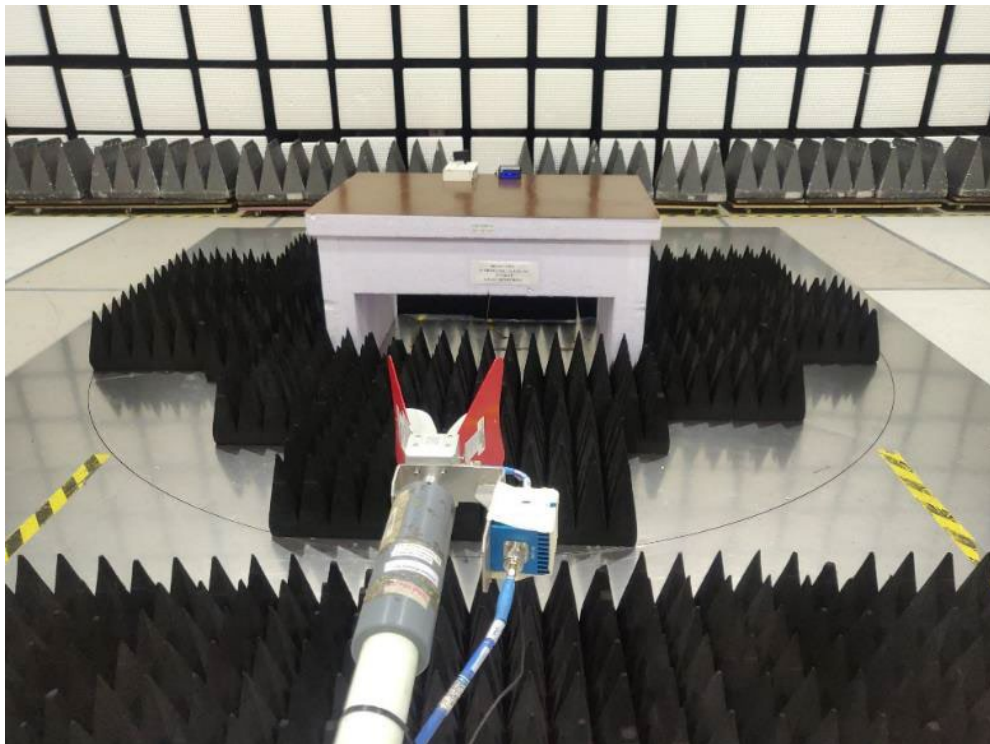


Figure 14: Photograph of RE test setup from 1GHz to 4GHz_Horizontal polarization

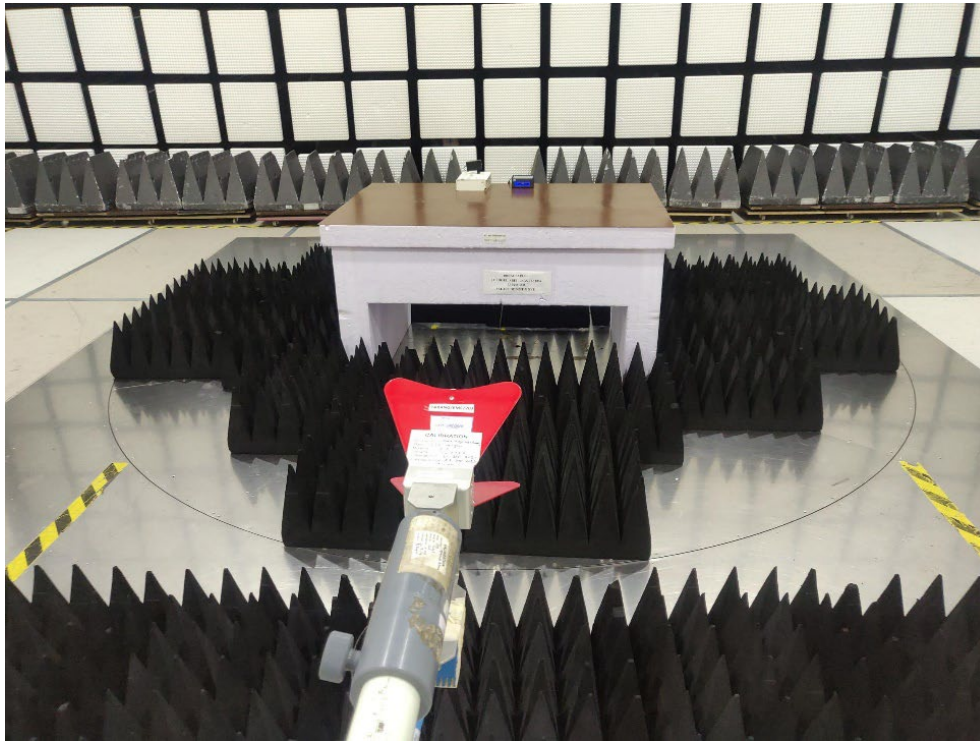


Figure 15: Photograph of RE test setup from 1GHz to 4GHz_Vertical polarization

5.2.1.8 RESULT

Radiated Emissions from the EUT as per ANSI C63.4:2014 (CFR 47, FCC Part 15 B), Class B limit: PASS.

Decision Rule Followed: Decision rule as prescribed in the appropriate standard, where measurement results are governed by legal or regulatory standards or rules.



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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5.2.2 CONDUCTED EMISSIONS TEST

5.2.2.1 TEST SPECIFICATION

Test Standard	ANSI C63.4:2014 (CFR 47, FCC Part 15 B)
Test Procedure	ANSI C63.4:2014
Class/ Group	Class B
Type of cable (Shielded/ Unshielded)	Unshielded
Frequency Range	150kHz to 30MHz
Resolution Bandwidth	9kHz
Video Bandwidth	30kHz
Step size	4kHz
Pre scan Measurement Time	20 ms
Final Measurement Time	1 second
Attenuation	Auto
Detector	Peak, Quasi-peak and Average
EUT Type	Table Top
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	23.1 ° C
Relative Humidity	56.8 %
Tested By	Anjanakumari B T
Test Date	23 June 2022

5.2.2.2 DEVIATION FROM THE STANDARD

NA

5.2.2.3 LIMITS

Maximum permissible conducted emission (disturbance) at the mains port as ANSI C63.4:2014 (CFR 47, FCC Part 15 B) is as shown below:

Frequency (Hz)	Voltage limits Class B (dBμV)	
	Quasi-peak	Average
0.15M to 0.50M	66 to 56*	56 to 46*
0.50M to 5M	56	46
5M to 30M	60	50

*Decreasing linearly with logarithm of frequency.

5.2.2.4 TEST SETUP

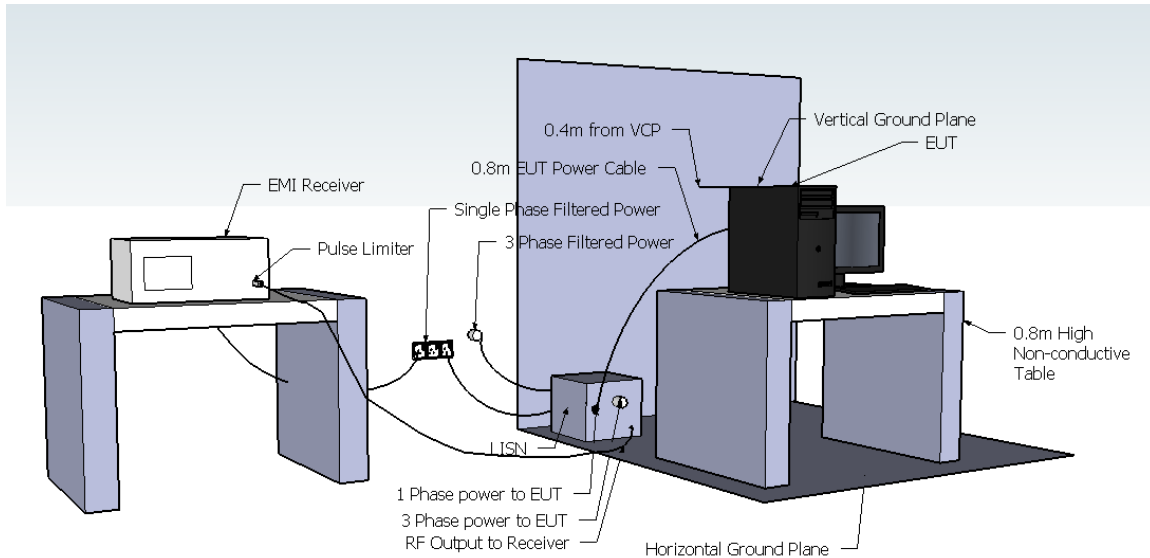


Figure 16: Sample CE test setup for tabletop equipment from 150kHz to 30MHz

5.2.2.5 TEST PROCEDURE

The test procedure was in accordance with ANSI C63.4:2014.

This Table Top equipment was tested at the conducted emissions test site with a horizontal ground reference plane and a vertical ground reference plane bonded together. The EUT was placed on non-conductive table of 0.8meter height as per standard. The power supply to the EUT and auxiliary equipment was feed through LISN.

LISN (Voltage Method):

The conducted emissions (disturbance) was measured through the 50 Ω RF port of the LISN using an EMI receiver. Pre-scan (Peak and Average) was carried out in max hold mode and conducted emission from the EUT coupled through the Power (mains) port was plotted in the graph. The dominant peaks at various frequencies, closer to and above the limit line were identified using peak search option and listed. Quasi-peak and Average measurement was carried out for the listed frequencies and compared with the limit specified in the standard.

Formulas used for QP EMI and margin for Voltage method are as listed below.

- $(QP) \text{ EMI (dB}\mu\text{V)} = (QP) \text{ Trace (dB}\mu\text{V)} + \text{Transducer (dB)} + \text{Cable (dB)} + \text{Pulse limiter (dB)}$
- $QP \text{ Margin (dB)} = (QP) \text{ EMI (dB}\mu\text{V)} - (QP) \text{ Limit (dB}\mu\text{V)}$

TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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Formulas used for AVG EMI and margin for Voltage method are as listed below.

- $(AVG) EMI (dB\mu V) = (AVG) Trace (dB\mu V) + Transducer (dB) + Cable (dB) + Pulse limiter (dB)$
- $AVG Margin (dB) = (AVG) EMI (dB\mu V) - (AVG) Limit (dB\mu V)$

5.2.2.6 MEASUREMENT DATA

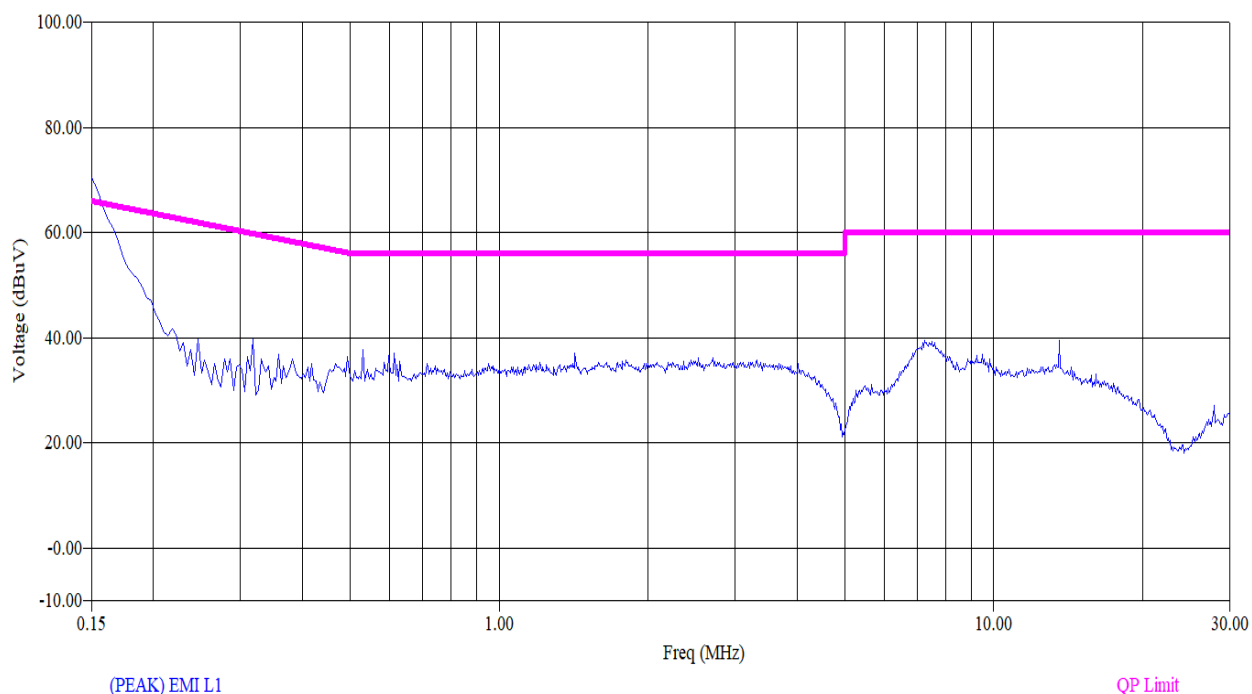


Figure 17: CE graph using Peak detector from 150kHz to 30MHz_ Line



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

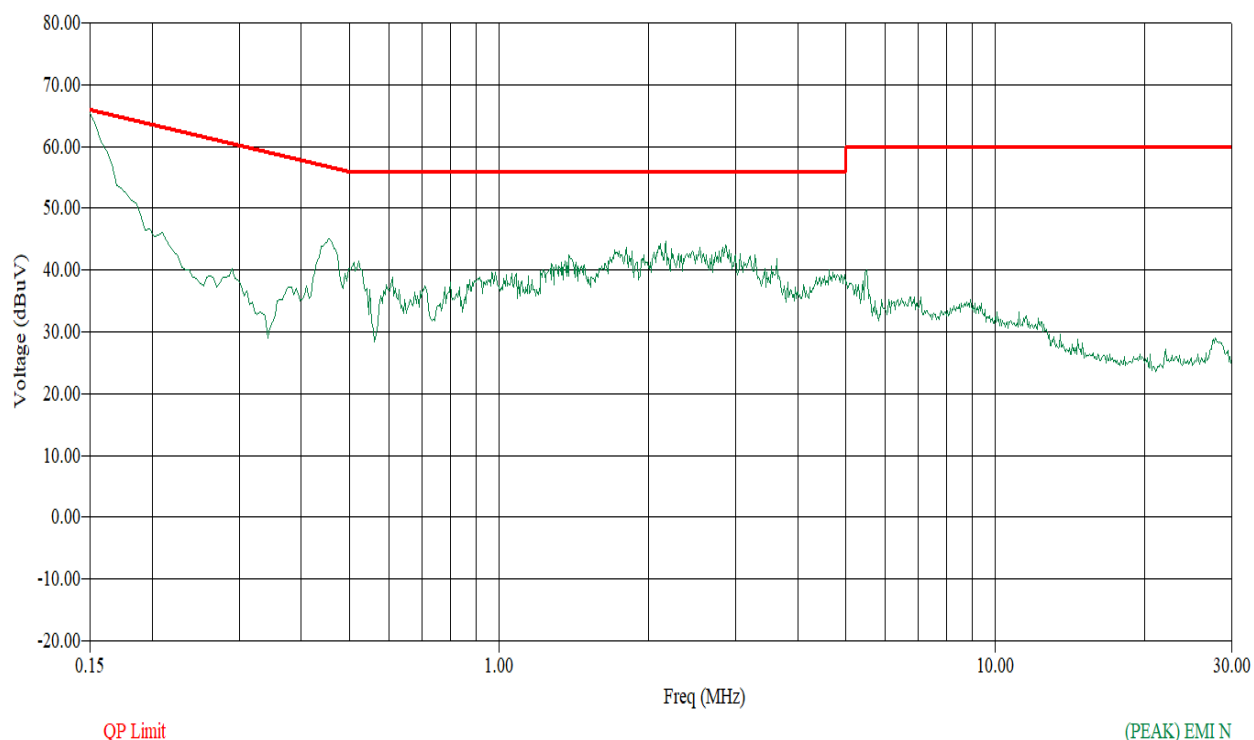


Figure 18: CE graph using Peak detector from 150kHz to 30MHz_Neutral

Freq (MHz)	Freq (Max) (MHz)	Line	(QP) Trace (dBuV)	Cable loss (dB)	Transducer N (dB)	Pulse Limiter (dB)	Transducer L (dB)	(QP) EMI (dBuV)	QP Limit (dBuV)	(QP) Margin (dB)
0.150	0.151	L1	54.17	0.48	0.00	9.84	0.07	64.56	65.96	-1.40
0.150	0.151	N	54.19	0.48	0.08	9.84	0.00	64.59	65.96	-1.37
0.246	0.254	L1	19.37	0.51	0.00	9.84	0.05	29.78	61.61	-31.84
0.318	0.313	L1	14.02	0.52	0.00	9.84	0.05	24.43	59.90	-35.47
0.398	0.396	L1	19.11	0.48	0.00	9.84	0.05	29.48	57.94	-28.46
0.446	0.449	N	22.76	0.50	0.05	9.84	0.00	33.14	56.90	-23.75
1.466	1.453	N	18.32	0.72	0.06	9.85	0.00	28.95	56.00	-27.05
2.070	2.068	L1	20.70	0.77	0.00	9.85	0.08	31.40	56.00	-24.60
4.826	4.819	N	21.65	0.70	0.11	9.85	0.00	32.31	56.00	-23.69
4.902	4.897	N	22.21	0.70	0.11	9.85	0.00	32.87	56.00	-23.13
7.238	7.249	L1	23.91	0.66	0.00	9.86	0.14	34.57	60.00	-25.43
7.266	7.262	N	19.36	0.66	0.14	9.86	0.00	30.02	60.00	-29.98
7.350	7.357	L1	24.18	0.66	0.00	9.86	0.14	34.85	60.00	-25.15
13.558	13.561	L1	27.04	0.53	0.00	9.87	0.16	37.60	60.00	-22.40
13.562	13.560	N	25.46	0.53	0.17	9.87	0.00	36.03	60.00	-23.97

Table 9: CE Quasi-peak measurement table from 150kHz to 30MHz_Line and Neutral

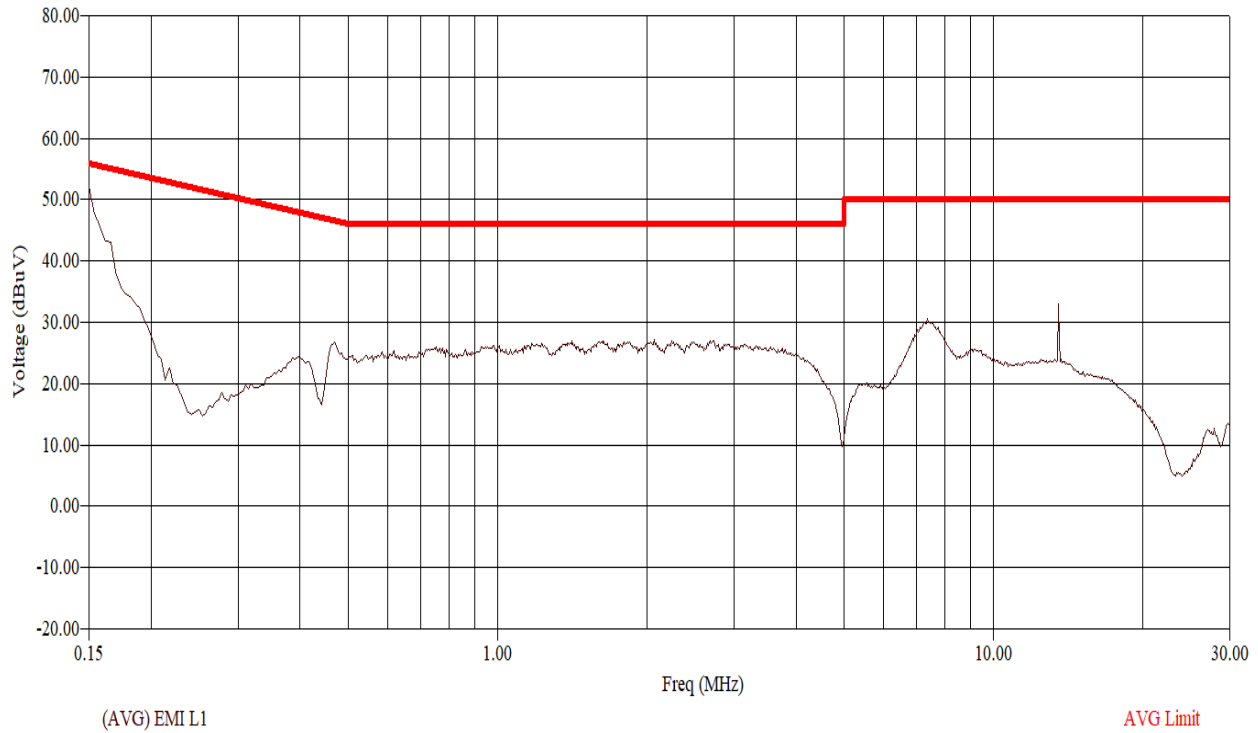


Figure 19: CE graph using Average detector from 150kHz to 30MHz_Line

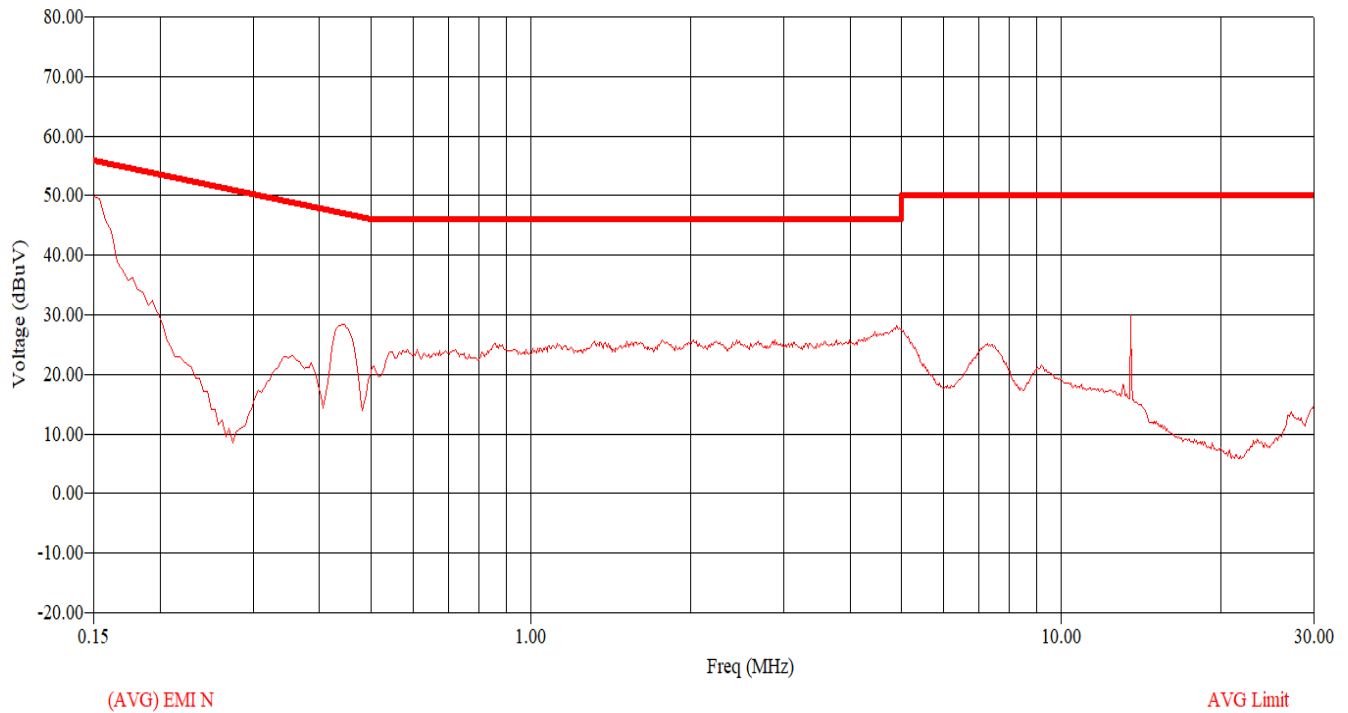


Figure 20: CE graph using Average detector from 150kHz to 30MHz_Neutral

TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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Freq (MHz)	Freq (Max) (MHz)	Line	(AVG) Trace (dBuV)	Cable loss (dB)	Transducer L (dB)	Transducer N (dB)	Pulse limiter (dB)	(AVG) EMI (dBuV)	Avg Limit (dBuV)	(AVG) Margin (dB)
0.150	0.151	L1	37.77	0.48	0.07	0.00	9.84	48.16	55.96	-7.80
0.150	0.151	N	37.50	0.48	0.00	0.08	9.84	47.90	55.96	-8.05
0.246	0.254	L1	3.47	0.51	0.05	0.00	9.84	13.88	51.61	-37.73
0.318	0.313	L1	8.65	0.52	0.05	0.00	9.84	19.06	49.90	-30.84
0.398	0.396	L1	13.99	0.48	0.05	0.00	9.84	24.37	47.94	-23.57
0.446	0.449	N	17.52	0.50	0.00	0.05	9.84	27.91	46.90	-18.99
1.466	1.453	N	13.27	0.72	0.00	0.06	9.85	23.90	46.00	-22.10
2.070	2.068	L1	15.60	0.77	0.08	0.00	9.85	26.30	46.00	-19.70
4.826	4.819	N	16.17	0.70	0.00	0.11	9.85	26.83	46.00	-19.17
4.902	4.897	N	16.83	0.70	0.00	0.11	9.85	27.49	46.00	-18.51
7.238	7.249	L1	18.61	0.66	0.14	0.00	9.86	29.27	50.00	-20.73
7.266	7.262	N	14.06	0.66	0.00	0.14	9.86	24.72	50.00	-25.28
7.350	7.357	L1	18.87	0.66	0.14	0.00	9.86	29.53	50.00	-20.47
13.558	13.561	L1	19.45	0.53	0.16	0.00	9.87	30.01	50.00	-19.99
13.562	13.560	N	17.50	0.53	0.00	0.17	9.87	28.07	50.00	-21.93

Table 10: CE Average measurement table from 150kHz to 30MHz_Line and Neutral

5.2.2.7 TEST SETUP PHOTOS



Figure 21: Photograph of CE test setup on Power port



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
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5.2.2.8 RESULT

Conducted Emissions from the EUT as per ANSI C63.4:2014 (CFR 47, FCC Part 15 B), Class B limit: PASS.

Decision Rule Followed: Decision rule as prescribed in the appropriate standard, where measurement results are governed by legal or regulatory standards or rules.



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

LIST OF FIGURES

FIGURE 1: BLOCK DIAGRAM OF THE EUT SETUP	11
FIGURE 2: SAMPLE RE TEST SETUP FOR TABLETOP EQUIPMENT AT 3METERS DISTANCE FROM 30MHZ TO 1GHZ	13
FIGURE 3: SAMPLE RE TEST SETUP FOR TABLETOP EQUIPMENT AT 3METERS DISTANCE FROM 1GHZ TO 4GHZ	14
FIGURE 4: RE GRAPH USING PEAK DETECTOR ON HORIZONTAL POLARIZATION FROM 30MHZ TO 200MHZ	16
FIGURE 5: RE GRAPH USING PEAK DETECTOR ON VERTICAL POLARIZATION FROM 30MHZ TO 200MHZ.....	16
FIGURE 6: RE GRAPH USING PEAK DETECTOR ON HORIZONTAL POLARIZATION FROM 200MHZ TO 1GHZ	17
FIGURE 7: RE GRAPH USING PEAK DETECTOR ON VERTICAL POLARIZATION FROM 200MHZ TO 1GHZ.....	18
FIGURE 8: RE GRAPH USING AVERAGE DETECTOR ON HORIZONTAL POLARIZATION FROM 1GHZ TO 4GHZ	19
FIGURE 9: RE GRAPH USING AVERAGE DETECTOR ON VERTICAL POLARIZATION FROM 1GHZ TO 4GHZ.....	19
FIGURE 10: PHOTOGRAPH OF RE TEST SETUP FROM 30MHZ TO 200MHZ -HORIZONTAL POLARIZATION.....	20
FIGURE 11: PHOTOGRAPH OF RE TEST SETUP FROM 30MHZ TO 200MHZ-VERTICAL POLARIZATION.....	21
FIGURE 12: PHOTOGRAPH OF RE TEST SETUP FROM 200MHZ TO 1GHZ -HORIZONTAL POLARIZATION.....	21
FIGURE 13: PHOTOGRAPH OF RE TEST SETUP FROM 200MHZ TO 1GHZ -VERTICAL POLARIZATION	22
FIGURE 14: PHOTOGRAPH OF RE TEST SETUP FROM 1GHZ TO 4GHZ -HORIZONTAL POLARIZATION	22
FIGURE 15: PHOTOGRAPH OF RE TEST SETUP FROM 1GHZ TO 4GHZ-VERTICAL POLARIZATION	23
FIGURE 16: SAMPLE CE TEST SETUP FOR TABLETOP EQUIPMENT FROM 150KHZ TO 30MHZ.....	25
FIGURE 17: CE GRAPH USING PEAK DETECTOR FROM 150KHZ TO 30MHZ_ LINE.....	26
FIGURE 18: CE GRAPH USING PEAK DETECTOR FROM 150KHZ TO 30MHZ_ NEUTRAL	27
FIGURE 19: CE GRAPH USING AVERAGE DETECTOR FROM 150KHZ TO 30MHZ_ LINE	28
FIGURE 20: CE GRAPH USING AVERAGE DETECTOR FROM 150KHZ TO 30MHZ_ NEUTRAL	28
FIGURE 21: PHOTOGRAPH OF CE TEST SETUP ON POWER PORT	29
FIGURE 22: PHOTOGRAPH OF EUT	33
FIGURE 23: PHOTOGRAPH OF INTEL NUC MINI PC.....	33
FIGURE 24: PHOTOGRAPH OF POWER ADAPTER OF INTEL NUC MINI PC.....	34
FIGURE 25: PHOTOGRAPH OF TEST LAPTOP.....	34
FIGURE 26: PHOTOGRAPH OF TEST LAPTOP CHARGER.....	35
FIGURE 27: PHOTOGRAPH OF ETHERNET CABLE (CAT6) – 1	35
FIGURE 28: PHOTOGRAPH OF ETHERNET CABLE (CAT6) – 2	36



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

LIST OF TABLES

TABLE 1: LIST OF EQUIPMENT USED FOR RADIATED EMISSION TEST.....	9
TABLE 2: LIST OF EQUIPMENT USED FOR CONDUCTED EMISSION TEST	9
TABLE 3: LIST OF TEST SOFTWARE USED FOR TESTING	9
TABLE 4: LIST OF ACCESSORIES USED FOR TESTING.....	11
TABLE 5: LIST OF CABLES CONNECTED TO EUT.....	11
TABLE 6: RE QUASI-PEAK MEASUREMENT TABLE FROM 30MHZ TO 200MHZ.....	17
TABLE 7: RE PEAK MEASUREMENT TABLE FROM 200MHZ TO 1GHZ	18
TABLE 8: RE AVERAGE MEASUREMENT TABLE FROM 1GHZ TO 4GHZ	20
TABLE 9: CE QUASI-PEAK MEASUREMENT TABLE FROM 150KHZ TO 30MHZ_LINE AND NEUTRAL	27
TABLE 10: CE AVERAGE MEASUREMENT TABLE FROM 150KHZ TO 30MHZ_LINE AND NEUTRAL.....	29

ANNEXURE I: EUT AND ACCESSORIES PHOTOGRAPHS



Figure 22: Photograph of EUT



Figure 23: Photograph of Intel NUC Mini PC



Figure 24: Photograph of power adapter of Intel NUC Mini PC



Figure 25: Photograph of Test Laptop



Figure 26: Photograph of Test Laptop Charger



Figure 27: Photograph of Ethernet Cable (Cat6) – 1

TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------



Figure 28: Photograph of Ethernet Cable (Cat6) – 2



TEST REPORT NO: UFT 2226IND168-1-A1

TEST REPORT VERSION: 1.01

TEMPLATE NO: WP-TL-T-005

ANNEXURE II: ANY OTHER ADDITIONAL INFORMATION

EUT Specifications are as below;

1. Physical: Dimensions - 22 X 80 X 10 mm, Weight - 37 gms
2. Host Interface: Hardware Interface - M.2 M-Key M.2-2280 PCIe Gen 3x1, x2, x4
3. Operating Voltage: 3.3V +/- 10% Thermal Design Power - 6W
4. Operating Temperature: 0 0C to +70 0C (Commercial) -40 0C to +85 0C (Industrial)
5. Operating Frequency: 30MHz to 4GHz



TEST REPORT NO: UFT 2226IND168-1-A1	TEST REPORT VERSION: 1.01	TEMPLATE NO: WP-TL-T-005
-------------------------------------	---------------------------	--------------------------

ANNEXURE III: ACRONYMS

AC	Alternating Current
CE	Conducted Emissions
dB	Decibel
EMC	Electromagnetic Compatibility
EMI	Electro Magnetic Interference
EUT	Equipment Under Test
GRP	Ground Reference Plane
Hz	Hertz
kHz, MHz, GHz	Kilo Hertz, Mega Hertz, Giga Hertz
ms, ns	Milli second, nano second
NA	Not Applicable
RE	Radiated Emissions
TEC	Telecommunication Engineering Center
NABL	National Accreditation Board for Testing and Calibration Laboratories

END OF REPORT