

ELECTROMAGNETIC EMISSIONS **COMPLIANCE REPORT**



Applicant:	Wacom Co., Ltd. 2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148 Japan
Manufacturer:	Wacom Co., Ltd. 2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148 Japan
Product Name:	Creative Pen Tablet
Brand Name:	Wacom
Model No.:	PTK870
Family Model No.:	PTK870******* ("*" may be alphanumeric/ symbol or blank)
Model Difference:	For marketing purpose
Report Number:	TERF2406001854E2
FCC ID	HV4PTK870
Date of EUT Received:	May 27, 2024
Date of Test:	July 08, 2024~August 07, 2024
Issue Date:	September 13, 2024

Approved By ALMO HSieh Arno Hsieh

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15C.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History							
Report Number	Revision	Description	Issue Date	Revised By	Remark		
TERF2406001854E2	00	Original	August 22, 2024	Kate Lai			
TERF2406001854E2	01	Updated FCC Rule Part	September 13, 2024	Kate Lai	*		

Note:

- 1 . The remark "*" indicates modification of the report upon requests from certification body.
- 2 · Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received. And are assessed as electrically identical in RF characteristics, therefore, no further assessment required for the variant(s).

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GENERAL INFORMATION 1

1.1 **Product Description**

Product Name:	Creative Pen Tablet
Brand Name:	Wacom
Model No.:	PTK870
Family Model No.:	PTK870******* ("*" may be alphanumeric/ symbol or blank)
Model Difference:	For marketing purpose
EUT Series No.:	4EHS1L1000090
Power Supply:	3.7 Vdc from Rechargeable Li-ion Polymer Battery or 5 Vdc from USB Port
Test Software (Name/Version)	Default

1.2 **RF** Specification

Technology:	EMR
Operating Frequency	666.67kHz, 531.25kHz, 562.5kHz, 593.75kHz
FCC Transmit Power	7.54 dBuV/m at 30m.
Number of Channels	4
Antenna Type	Loop

Note: Antenna information is provided by the applicant.

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1.3 **Test Methodology**

FCC Part 15, Subpart C

ANSI C63.10:2013

1.4 **Test Facility**

Laboratory	Test Site Address	Test Site Name	FCC Designation number			
		SAC 1				
		SAC 2				
		SAC 3				
	No. 404 Min Kuran De ed. Nous Teinei	Conduction 1				
	No.134, Wu Kung Road, New Taipei	Conducted 1	TW0027			
	Industrial Park, Wuku District, New Taipei City, Taiwan.	Conducted 2	100027			
		Conducted 3				
		Conducted 4				
		Conducted 5				
SGS Taiwan Ltd.		Conducted 6				
Central RF Lab.		Conduction C				
(TAF code 3702)		SAC C				
		SAC D				
		SAC G				
	No 2 Kali 1et Dd. Cwiehen District	Conducted A				
	No.2, Keji 1st Rd., Guishan District,	Conducted B	TW0028			
	Taoyuan City, Taiwan 333	Conducted C				
		Conducted D				
		Conducted E				
		Conducted F				
Conducted G						
Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.						

1.5 **Special Accessories**

There is no special accessory used while test was conducted.

1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION 2

2.1 **EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 **EUT Exercise**

The Transmitter was operated in the normal operating mode. The Tx frequency was fixed which was for the purpose of the measurements.

2.3 **Test Procedure**

2.3.1 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for radiated emissions, measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

2.3.2 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber. the measurements correspond to those obtained at an open-field test site.

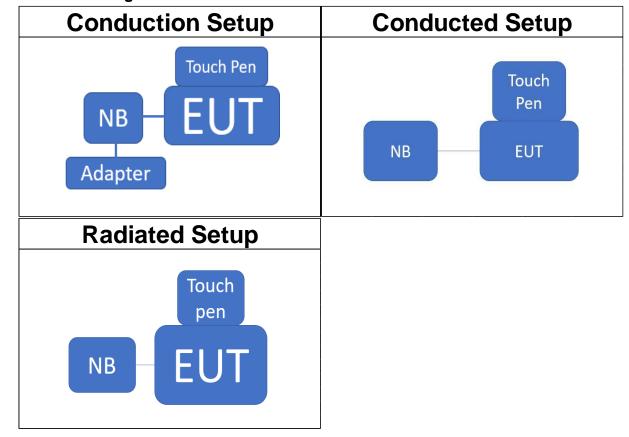
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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Test Configuration 2.4



2.5 Control Unit(s)

AC Power-Line Conducted Emission Test Site: Conduction C						
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	
Notebook	HP	HSN-Q35C-4	N/A	N/A	N/A	
Adapter	HP	TPN-LA16	N/A	N/A	N/A	
Touch Pen	Wacom	CP-923-03B-2	N/A	N/A	N/A	
USB Cable	ACON	STJ-A434	N/A	N/A	N/A	
	C	onducted Emission T	est Site: Conducted (2		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	
Notebook	Lenovo	L420	S0011721	N/A	N/A	
Touch Pen	Wacom	ACP-500-02	N/A	N/A	N/A	
Touch Pen	Wacom	ACP-501E-00	N/A	N/A	N/A	
Touch Pen	Wacom	CP-923-031B-2	N/A	N/A	N/A	
USB Cable	ACON	STJ-A434	N/A	N/A	N/A	
		Radiated Emissio	n Test Site: SAC C			
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	
Notebook	HP	HSN-Q35C-4	N/A	N/A	N/A	
Touch Pen	Wacom	CP-923-03B-2	N/A	N/A	N/A	
USB Cable	ACON	STJ-A434	N/A	N/A	N/A	

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SUMMARY OF TEST RESULTS 3

FCC Rules	FCC Rules Description Of Test	
§15.207	AC Power Line Conducted Emission	Compliant
§15.209	Radiated Emission Limits, general requirement	Compliant
§15.215 (c)	Emission Bandwidth	Compliant
§15.203	Antenna Requirement	Compliant

DESCRIPTION OF TEST MODES 4

The EUT stay in continuous transmitting mode. The frequency is the default channel to test, where it is the only manipulative channel as this application supports.

The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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MEASUREMENT UNCERTAINTY 5

Test Items	U	Incertair	nty
AC Power Line Conducted Emission	+/- 1.54 dB		
Frequency Stability	+/-	1.48	Hz
Emission Bandwidth	+/-	1.38	Hz
Temperature		0.6	°C
Humidity		3	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty						
	+/-	1.89	dB	9kHz~30MHz		
Polarization: Vertical	+/-	4.15	dB	30MHz - 1000MHz		
	+/-	3.43	dB	1GHz - 18GHz		
	+/-	3.86	dB	18GHz - 40GHz		
	+/-	1.89	dB	9kHz~30MHz		
Polarization: Horizontal	+/-	4.02	dB	30MHz - 1000MHz		
Folarization: Horizontai	+/-	3.43	dB	1GHz - 18GHz		
	+/-	3.86	dB	18GHz - 40GHz		
	+/-	2	dB	33GHz-50GHz		
	+/-	1.59	dB	50GHz-60GHz		
Radiated Spurious Emission	+/-	1.7	dB	60GHz-90GHz		
	+/-	1.64	dB	90GHz-140GHz		
	+/-	3.83	dB	140GHz-220GHz		

Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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MEASUREMENT EQUIPMENT USED 6

6.1 **Conducted AC Power line**

AC Power-Line Conducted Emission Test Site: Conduction C							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
Coaxial Cable	EC Lab	RF-HY-CAB-250	RF-HY-CAB-250-01	03/27/2024	03/26/2025		
EMI Test Receiver	R&S	ESCI	101342	04/29/2024	04/28/2025		
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	973	04/22/2024	04/21/2025		
Pulse Limiter	EC Lab	VTSD 9561F-N	485	03/27/2024	03/26/2025		
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R		

6.2 **Emission Bandwidth**

Conducted Emission Test Site: Conducted C						
EQUIPMENT TYPE MFR MODEL NUMBER SERIAL NUMBER LAST CAL. CAL DUE.						
DC Block	PASTERNACK	PE8210	RF155	11/15/2023	11/14/2024	
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071573	05/24/2024	05/23/2025	
H-Loop Near Field	LANGER EMV-	LF-R 400	02-1597	N.C.R	N.C.R	
Antenna	Technik	LF-K 400	02-1557	N.C.N	N.C.N	

6.3 **Radiated Measurement**

	Radiated Emission Test Site: SAC C							
EQUIPMENT TYPE	MFR	MODEL NUMBER	LAST CAL.	CAL DUE.				
3m Site NSA	SGS	966 chamber C	N/A	03/02/2024	03/01/2025			
Active Loop Antenna	COM-POWER	AL-130R	10160105	12/04/2023	12/03/2024			
Broadband Antenna	SCHWARZBECK	VULB 9168	9168-300	11/02/2023	11/01/2024			
Coaxial Cable	Huber+Suhner	RG 214/U	W22.03	11/15/2023	11/14/2024			
EMI Test Receiver	R&S	ESCI	101342	04/29/2024	04/28/2025			
Pre-Amplifier	EMC Instruments	EMC330	980096	11/15/2023	11/14/2024			
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	04/10/2024	04/09/2025			
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R			

NOTE: N.C.R refers to Not Calibrated Required.

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7 CONDUCTED EMISSIONS TEST

7.1 Limitation

According to section 15.207(a) Conducted Emission Limits as following.

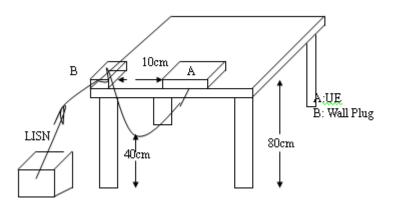
		Limits				
Frequency range		(dBuV)				
MHz	Quasi-peak	Average				
0.15 to 0.50	66 to 56	56 to 46				
0.50 to 5	56	46				
5 to 30	60	50				
Note						
1. The lower limit shall apply at the transition frequencies						

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

7.2 EUT Setup:

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

7.3 Test SET-UP (Block Diagram of Configuration)



7.4 Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

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7.5 **Measurement Result:**

Report Number	:TERF2406001854E2
Test Mode	:EMR
Power	:120V/60Hz
Probe	:L1

:Conduction C
:2024-07-15
:23.4℃/50%
:Howard Huang

80 Leve	l (dBuV)					
70.0						
60.0						
50.0 2 h	3					
40.0	The sector			6		
30.0	11-14	Million	and the second	W Am	mathing	
20.0		and Julian		- n r		
10.0						
0.15	0.4	5 1 Frequ	2 ency (MHz)	5 10	20 30	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBμV	dB	dBµV	dBµV	dB
0.155	Average	22.70	10.69	33.39	55.72	-22.33
0.155	QP	36.60	10.69	47.29	65.72	-18.43
0.211	Peak	35.33	10.68	46.00	63.18	-17.18
0.385	Peak	26.37	10.64	37.02	58.17	-21.15
0.484	Peak	28.02	10.63	38.65	56.27	-17.61
7.083	Peak	24.29	10.97	35.26	60.00	-24.74
19.622	Peak	19.66	11.15	30.80	60.00	-29.20

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f (886-2) 2298-0488



Report Number	:TERF2406001854E2	Test Site	:Conductio	n C	
Test Mode	:EMR	Test Date	:2024-07-1	5	
Power	:120V/60Hz	Temp./Humi.	:23.4°C/509	6	
Probe	:N	Engineer	:Howard Hu	Jang	
		-		-	
80 Level (d	dBuV)				
70.0					
60.0					
50.0 11 ³ 2					
40.0	Mar San		6		
30.0	Martin harris manun	anna My (monen	have	
20.0	and his ment	······		W TTM	
10.0					
0.15	0.5 1 Frequ	2 5 Juency (MHz)	10	20 30	
Freq.	Detector Spectrum Mode Reading Level	Factor A	ctual FS	Limit	Margin
MHz F	PK/QP/AV dBµV		Γ3 ΒμV	dBµV	dB
			·	·	
	Average 20.50		1.17	55.93	-24.76
0.151	QP 34.40		5.07	65.93	-20.86
0.181	Peak 38.65		9.32	64.45	-15.13
0.388	Peak 22.42		3.04	58.10	-25.06
0.472	Peak 25.08		5.70	56.48	-20.78
7.454	Peak 21.35		2.35	60.00	-27.65
19.958	Peak 16.15	11.24 2	7.39	60.00	-32.61

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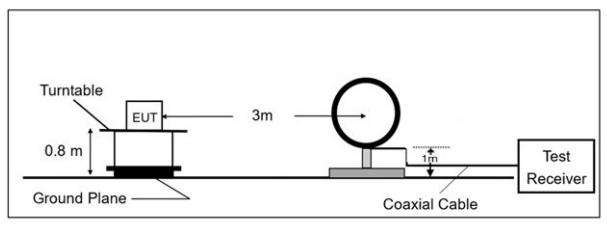
RADIATED EMISSION TEST 8

8.1 **Measurement Procedure**

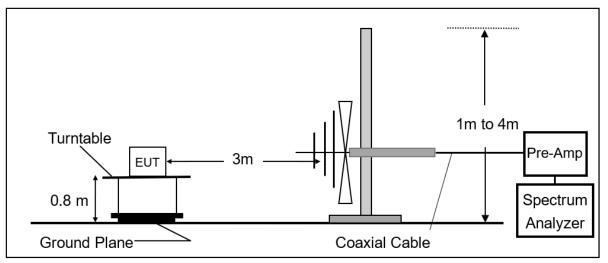
- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

8.2 Test Setup

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



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Applicable Standard 8.3

The field strength of any emissions appearing outside of operation frequency shall not exceed the general radiated emission limits in section 15.209 as below.

Frequency (MHz)	Field strength (μV/m)	Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

- 1. Emission level in $dB\mu V/m=20 \log (\mu V/m)$
- 2. Distance extrapolation factor = $40 \log$ (required distance/ test distance) (dB)
- 20*log(30uV/m) + 40dB = 69.54 dBuV/m 3.
- 4. The lower limit shall apply at the transition frequencies.
- The measurement was undertaken in closer distance at 3m, where extrapolation 5. factor is offset to convert the limit of the measurement.
- Only spurious frequency is permitted to locate within the Restricted Bands specified 6. in provision of §15.205.
- 7. The general radiated emission limits in §15.209 apply for the spurious emission generate from UE, except for the fundamental emission where the respective section specifies otherwise.
- Actual FS(dB μ V/m) = Spectrum. Reading level(dB μ V) + Factor(dB) 8. Factor(dB) = Antenna Factor(dB) + Cable Loss(dB) – Pre Amplifier Gain(dB)

Note:

- 1. The more stringent limit applies at the transition frequency.
- 2. Measurements are demonstrated in SAC with distance at 3m.
- Actual FS(dB μ V/m) = Spectrum. Reading level(dB μ V) + Factor(dB) 3. Factor(dB) = Antenna Factor(dB) + Cable Loss(dB) – Pre Amplifier Gain(dB)

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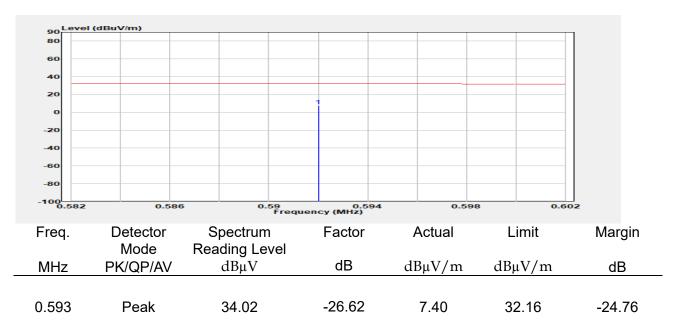
Report No.: TERF2406001854E2 Page: 16 of 24



8.4 **Test Result**

Field Strength of Fundamental Emission 8.4.1

Report Number	:TERF2406001854E2	Test Site	:SAC C
Operation Mode	:EMR	Test Date	:2024-07-15
Test Frequency	:593.75 kHz	Temp./Humi.	: 23.5° C/ 5 4%
Test Mode	:Main	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Howard Huang



Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre Amplifier Gain – distance factor

Test distance= 3m

For Actual level and limit:

Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz. Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

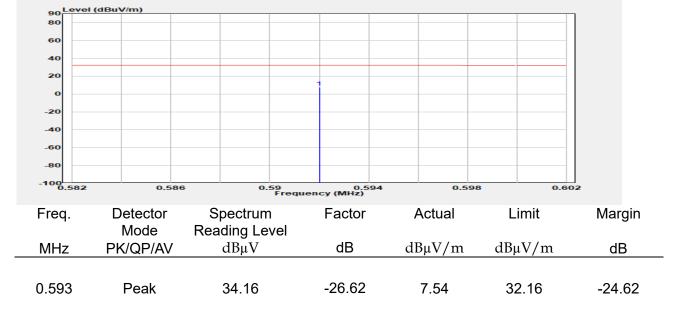
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Report Number	:TERF2406001854E2	Test Site	:SAC C
Operation Mode	:EMR	Test Date	:2024-07-15
Test Frequency	:593.75 kHz	Temp./Humi.	: 23.5° ℃/ 5 4%
Test Mode	:Main	Antenna Pol.	:Horizontal
EUT Pol	:E2 Plane	Engineer	:Howard Huang



Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre Amplifier Gain – distance factor

Test distance= 3m

For Actual level and limit:

Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz.

Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

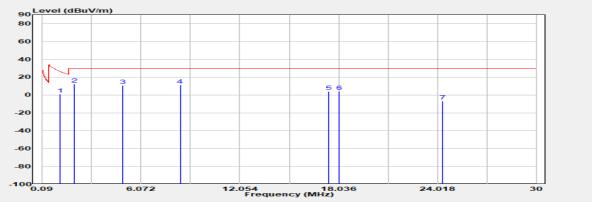
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Below 30 MHz Test Result 8.4.2

Report Number	:TERF2406001854E2	Test Site	:SAC C
Operation Mode	:EMR	Test Date	:2024-07-15
Test Frequency	:593.75 kHz	Temp./Humi.	:23.5°C/54%
Test Mode	:Tx	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Howard Huang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
1.187	Peak	27.18	-26.32	0.86	26.14	-25.27
2.034	Peak	38.40	-26.05	12.35	29.54	-17.19
4.965	Peak	36.13	-25.35	10.79	29.54	-18.75
8.435	Peak	35.80	-24.83	10.97	29.54	-18.57
17.408	Peak	28.71	-24.61	4.11	29.54	-25.43
18.066	Peak	28.52	-24.61	3.91	29.54	-25.63
24.347	Peak	18.70	-25.66	-6.96	29.54	-36.50

Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre_Amplifier Gain - distance factor

Test distance= 3m

For Actual level and limit: Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz. Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

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Report Numb	er :TER	F2406001854E2	e Test	Site	:SAC	С
Operation Mo	de :EMF	र	Test	Date	:2024	-07-15
Test Frequence	cy :593.	75 kHz	Tem	p./Humi.	:23.5	°C /54%
Test Mode	:Tx		Ante	enna Pol.	:Horiz	zontal
EUT Pol	:E2 F	Plane	Ena	ineer		ard Huang
			5			ara maang
90 Level (dBr 80	uV/m)]
60						
40						
0 1	3	4	5	7		
-20						
-40						
-60						
-100	6.072	12.054	19.03	6 24.01	8 30	
			18.03 iency (MHz)			
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz P	Mode PK/QP/AV	Reading Level dBμV	dB	dBµV/m	dBµV/m	dB
1.187	Peak	26.35	-26.32	0.03	26.14	-26.11
2.004	Peak	35.81	-26.06	9.75	29.54	-19.79
4.726	Peak	33.48	-25.40	8.08	29.54	-21.46
8.255	Peak	28.31	-24.86	3.45	29.54	-26.09
14.178	Peak	21.16	-24.60	-3.45	29.54	-32.99
17.976	Peak	20.84	-24.61	-3.77	29.54	-33.31
24.197	Peak	16.98	-25.63	-8.65	29.54	-38.19

Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre Amplifier Gain – distance factor

Test distance= 3m

For Actual level and limit: Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz. Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

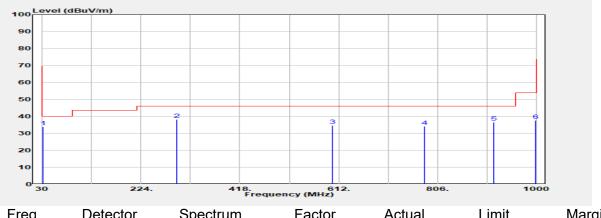
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Above 30MHz Test Result 8.4.3

Report Number	:TERF2406001854E2	Test Site	:SAC C
Operation Mode	:EMR	Test Date	:2024-07-15
Test Frequency	:593.75 kHz	Temp./Humi.	: 23.5 °C /54%
Test Mode	:Tx	Antenna Pol.	:Vertical
EUT Pol	:E2 Plane	Engineer	:Howard Huang



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
31.940	QP	48.57	-14.77	33.80	40.00	-6.20
294.810	Peak	50.38	-12.08	38.29	46.00	-7.71
599.390	Peak	38.76	-3.94	34.82	46.00	-11.18
780.780	Peak	34.70	-0.50	34.19	46.00	-11.81
916.580	Peak	34.65	1.99	36.64	46.00	-9.36
999.030	Peak	35.35	2.21	37.55	54.00	-16.45

Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre Amplifier Gain – distance factor

Test distance= 3m

For Actual level and limit:

Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz. Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

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Report Num	ber :TEl	RF2406001854E2	Test	Site	:SAC	С	
Operation M	lode :EM	R	Test	Date	:2024	-07-15	
Test Freque	ncy :593	8.75 kHz	Temp	o./Humi.	:23.5	°C /54%	
Test Mode	:Tx		Ante	nna Pol.	:Horiz	zontal	
EUT Pol	:E2	:E2 Plane		Engineer		:Howard Huang	
100 Level (d 90 80 70 60 50 40 30 1 20 10 0 30	BuV/m)	2 3 2 3 4 418. Freque	4 4 612. ency (MHz)	5 6		•	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin	
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	dBµV/m	dBµV/m	dB	
31.940 302.570 398.600 599.390 719.670	QP QP Peak Peak Peak	45.27 42.02 41.08 38.64 36.85	-14.77 -11.81 -8.91 -3.94 -1.67	30.50 30.21 32.18 34.70 35.18	40.00 46.00 46.00 46.00 46.00	-9.50 -15.79 -13.82 -11.30 -10.82	
774.960 997.090	Peak Peak	36.01 36.75	-0.32 1.91	35.68 38.66	46.00 54.00	-10.32 -15.34	

Actual level = Reading level + Factor

Factor = Antenna factor + cable loss – Pre Amplifier Gain – distance factor

Test distance= 3m

For Actual level and limit: Field strength (dBuV/m) at 300m, within the band 9 kHz - 490 kHz. Field strength (dBuV/m) at 30m, within the band 490 kHz - 30 MHz.

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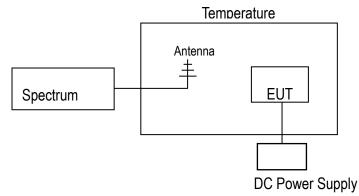
20 dB OCCUPIED BANDWIDTH MEASUREMENT 9

9.1 Standard Applicable:

§2.1049 & §15.215 (c)

Intentional radiators operating under the alternative provisions to the general emission limits, 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.

9.2 Test SET-UP (Block Diagram of Configuration)



9.3 **Measurement Procedure**

20dB bandwidth

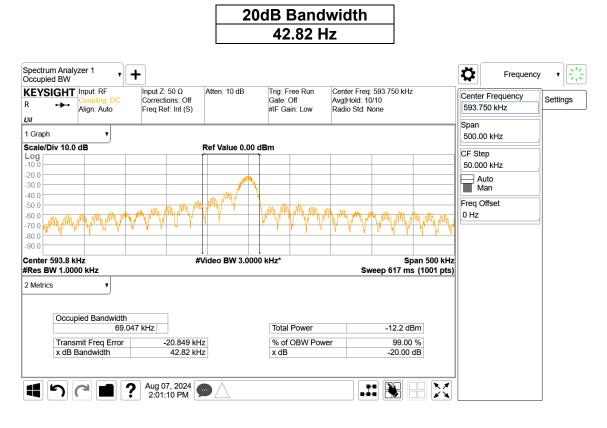
- The transmitter output (antenna port) was connected to the spectrum analyzer in peak 1. mode.
- 20dB Bandwidth the resolution bandwidth of 1 kHz and the video bandwidth of 3 kHz 2. were used.
- Measured the spectrum width with power higher than 20dB below carrier. 3.

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9.4 Measurement Result



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10 ANTENNA REQUIREMENT

10.1 Standard Applicable:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

10.2 Antenna Connected Construction:

The antenna complies with this requirement and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~

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