

Report No.: POCE240112006RF002

RF TEST REPORT

For

VITRINEMEDIA Enterprise

Product Name: Eco Smart Display

Test Model(s).: 0103_5_00

Report Reference No. : POCE240112006RF002

FCC ID : 2AR5X-0103500

Applicant's Name : VITRINEMEDIA Enterprise

Address : 50 route de la Reine 92100 Boulogne-Billancourt FRANCE

Testing Laboratory : Shenzhen POCE Technology Co., Ltd.

Address 102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park,

Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China

Test Specification Standard : 47 CFR Part 15.247

Date of Receipt : January 12, 2024

Date of Test: January 12, 2024 to February 28, 2024

Data of Issue : February 28, 2024

Result : Pass

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V1.0

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE240112006RF002	February 28, 2024
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	00	PO	

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.247	6	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	ANSI C63.10-2013 section 6.2	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass



2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : VITRINEMEDIA Enterprise

Address : 50 route de la Reine 92100 Boulogne-Billancourt FRANCE

Manufacturer : Huizhou Vitrinemedia Optolectronic Technology Co., Ltd.

Address : Building #4,Desheng Industrial Park, Changbu Village, Xinxu Town, Huiyang

District, Huizhou City, China

2.2 Description of Device (EUT)

Eco Smart Display
0103_5_00
0103_3_00,0103_4_00, 0103_6_00, 0103_7_00, 0103_8_00, 0103_4_01, 0103_5_01,0103_6_01, 0103_7_01,
The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same.
Vitrinemedia
AC120V60Hz
2402MHz to 2480MHz
40
GFSK
External
2dBi
V1.0
V1.0

(Remark:The Antenna Gain is supplied by the customer.POCE is not responsible for This data and the related calculations associated with it)

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402 MHz	11	2422 MHz	21	2442 MHz	31	2462 MHz
2	2404 MHz	12	2424 MHz	22	2444 MHz	32	2464 MHz
3	2406 MHz	13	2426 MHz	23	2446 MHz	33	2466 MHz
4	2408 MHz	14	2428 MHz	24	2448 MHz	34	2468 MHz
5	2410 MHz	15	2430 MHz	25	2450 MHz	35	2470 MHz
6	2412 MHz	16	2432 MHz	26	2452 MHz	36	2472 MHz
7	2414 MHz	17	2434 MHz	27	2454 MHz	37	2474 MHz
8	2416 MHz	18	2436 MHz	28	2456 MHz	38	2476 MHz
9	2418 MHz	19	2438 MHz	29	2458 MHz	39	2478 MHz
10	2420 MHz	20	2440 MHz	30	2460 MHz	40	2480 MHz

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Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)
rest channel	BLE
Lowest channel	2402MHz
Middle channel	2440MHz
Highest channel	2480MHz

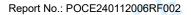
2.3 Description of Test Modes

No	Title	Description
TM1	Lowest channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.
TM2	Middle channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.
ТМ3	Highest channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.

2.4 Description of Support Units

The EUT was tested as an independent device.

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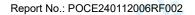




2.5 Equipments Used During The Test

Conducted Emission at AC power line						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
loop antenna	EVERFINE	LLA-2	80900L-C	2024-02-19	2025-02-18	
Power absorbing clamp	SCHWARZ BECK	MESS- ELEKTRONIK	1	2023-12-12	2024-12-11	
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	1	1	
Cable	SCHWARZ BECK	1	1	2023-12-27	2024-12-26	
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Ateennator	561-G071	2023-12-12	2024-12-11	
50ΩCoaxial Switch	Anritsu	MP59B	M20531	1	/	
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K 03-102109- MH	2023-06-13	2024-06-12	
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11	

Occupied Bandwidth						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
RF Test Software	TACHOY	RTS-01	V2.0.0.0	100	7	
High Pass filter	ZHINAN	OQHPF1-M1.5- 18G-224	6210075	1	/	
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10	
DC power	HP	66311B	38444359	/		
Power Meter	Keysight	E4416A	MY5303506	2022-12-10	2023-12-09	
RF Sensor Unit	Tachoy Information Technology(she nzhen) Co.,Ltd.	TR1029-2	000001	1	1	
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12	
Vector signal generator	Keysight	N5181A	MY48180415	2023-11-09	2024-11-08	
Signal generator	Keysight	N5182A	MY50143455	2023-11-09	2024-11-08	
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11	





Emissions in frequency bands (above 1GHz)
Maximum Conducted Output Power
Power Spectral Density
Emissions in non-restricted frequency bands

Emissions in non-restricted frequency bands Emissions in frequency bands (below 1GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
-quipiliont	Manacaici	inioaci ito	III V CIII CII Y I V	oui Duto	oui buc butc

Band edge emissions	(Radiated)	-004			
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	1	/
Positioning Controller	1	MF-7802	1	CE	/
High Pass filter	ZHINAN	OQHPF1-M1.5- 18G-224	6210075	1	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	1	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	1	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-02-19	2025-02-18
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-02-19	2025-02-18
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2023-06-14	2024-06-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12



2.6 Statement Of The Measurement Uncertainty

Measurement Uncertainty				
±3.41dB	00			
±3.63%				
±0.733dB				
±0.234%				
±1.98dB				
±5.46dB				
±5.79dB				
	±3.41dB ±3.63% ±0.733dB ±0.234% ±1.98dB ±5.46dB			

Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

· '	
Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration Number:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

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3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test Requirement:

Refer to 47 CFR Part 15.203, 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.

3.1.1 Conclusion:





4 Radio Spectrum Matter Test Results (RF)

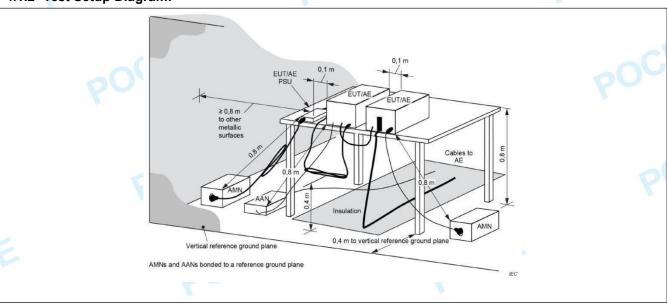
4.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).							
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBµV)						
		Quasi-peak	Average					
	0.15-0.5	66 to 56*	56 to 46*					
a E	0.5-5	56	46					
UP .	5-30	60	50					
	*Decreases with the logarithm of the frequency.							
Test Method:	ANSI C63.10-2013 section 6.2							
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices							

4.1.1 E.U.T. Operation:

Operating Environment:									
Temperature:	23.4 °C		Humidity:	47.7 % Atmospheric Pressure:		101 kPa			
Pretest mode:		TM1,	TM2,TM3			C.E.			
Final test mode:		TM1		200		2000			

4.1.2 Test Setup Diagram:



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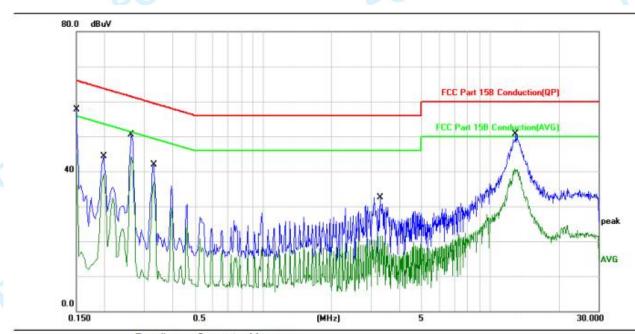


4.1.3 Test Data:

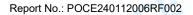
TM1 / Line: Line / Band: 2400-2483.5 MHz / BW: 1 / CH: L

V1.0

Power:AC120V60Hz



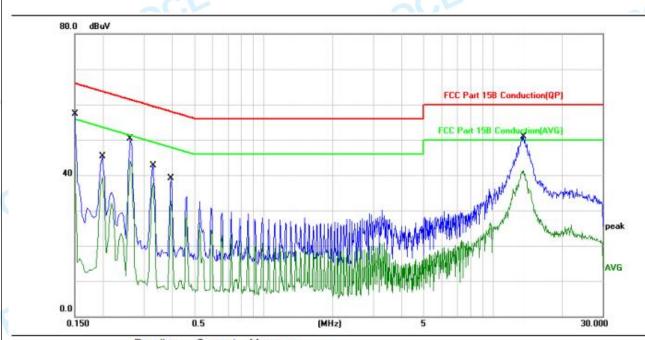
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1		0.1500	47.69	10.05	57.74	65.99	-8.25	QP		
2		0.1500	34.86	10.05	44.91	55.99	-11.08	AVG		
3		0.1980	34.18	10.03	44.21	63.69	-19.48	QP		
4		0.1980	29.25	10.03	39.28	53.69	-14.41	AVG		
5		0.2620	40.49	10.02	50.51	61.36	-10.85	QP		
6	*	0.2620	34.21	10.02	44.23	51.36	-7.13	AVG		
7		0.3300	31.83	10.01	41.84	59.45	-17.61	QP		
8		0.3300	26.86	10.01	36.87	49.45	-12.58	AVG		
9		3.2820	22.42	10.05	32.47	56.00	-23.53	QP		
10		3.2820	11.42	10.05	21.47	46.00	-24.53	AVG		
11		12.8060	30.23	10.43	40.66	50.00	-9.34	AVG		
12).	12.9379	40.19	10.43	50.62	60.00	-9.38	QP		





TM1 / Line: Neutral / Band: 2400-2483.5 MHz / BW: 1 / CH: L

Power:AC120V60Hz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	47.32	10.05	57.37	65.99	-8.62	QP	
2		0.1500	33.33	10.05	43.38	55.99	-12.61	AVG	
3		0.1980	35.22	10.03	45.25	63.69	-18.44	QP	
4		0.1980	29.53	10.03	39.56	53.69	-14.13	AVG	
5		0.2620	40.29	10.02	50.31	61.36	-11.05	QP	
6	*	0.2620	34.01	10.02	44.03	51.36	-7.33	AVG	
7		0.3300	32.71	10.01	42.72	59.45	-16.73	QP	
8		0.3300	27.75	10.01	37.76	49.45	-11.69	AVG	
9		0.3940	29.18	10.00	39.18	57.98	-18.80	QP	
10		0.3940	22.65	10.00	32.65	47.98	-15.33	AVG	
11		13.5980	40.41	10.44	50.85	60.00	-9.15	QP	
12		13.5980	30.80	10.44	41.24	50.00	-8.76	AVG	



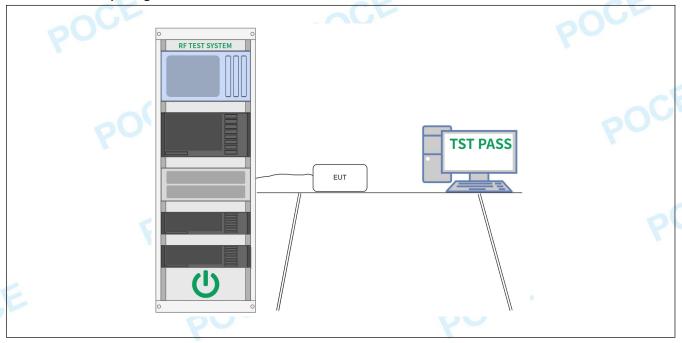
4.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2013, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	a) Set RBW = 100 kHz. b) Set the VBW >= [3 × RBW]. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.2.1 E.U.T. Operation:

Operating Environment:								
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa		
Pretest mode:	TM1,	TM2,TM3						
Final test mode:			TM2,TM3					

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

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Report No.: POCE240112006RF002

Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2013, section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power Note: Per ANSI C63.10-2013, if there are two or more antnnas, the conducted powers at Core 0, Core 1,, Core i were first measured separately, as shown in the section above(this product olny have one antenna). The measured values were then summed in linear power units then converted back to dBm. Per ANSI C63.10-2013 Section 14.4.3.2.3, the directional gain is calculated using the following formula, where GN is the gain of the nth antenna and NANT, the total number of antennas used. For correlated unequal antenna gain Directional gain = 10*log[(10G1/20 + 10G2/20 + + 10GN/20)2 / NANT] dBi For completely uncorrelated unequal antenna gain Directional gain = 10*log[(10G1/10 + 10G2/10 + + 10GN/10)/ NANT] dBi Sample Multiple antennas Calculation: Core 0 + Core 1 +Core i. = MIMO/CDD (i is the number of antennas) (#VALUE! mW + mW) = #VALUE! mW = dBm Sample e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

4.3.1 E.U.T. Operation:

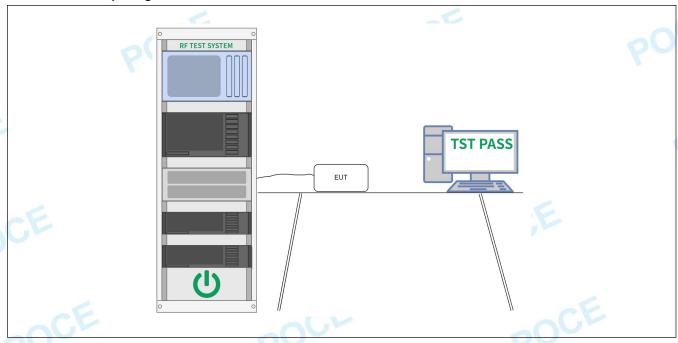
Operating Environment:									
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa			
Pretest mode:			TM2,TM3		2000				
Final test mode: TM			TM2,TM3		PO	Y			

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4.3.2 Test Setup Diagram:

V1.0



4.3.3 Test Data:

Please Refer to Appendix for Details.



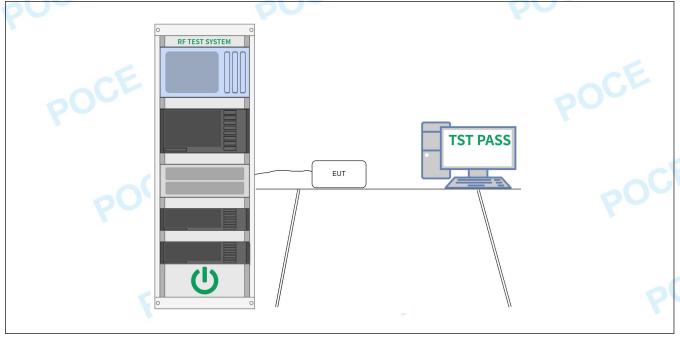
4.4 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2013, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission

4.4.1 E.U.T. Operation:

Operating Envir	Operating Environment:									
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa				
Pretest mode: TM1,TN			TM2,TM3							
Final test mode: TN			TM2,TM3							

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

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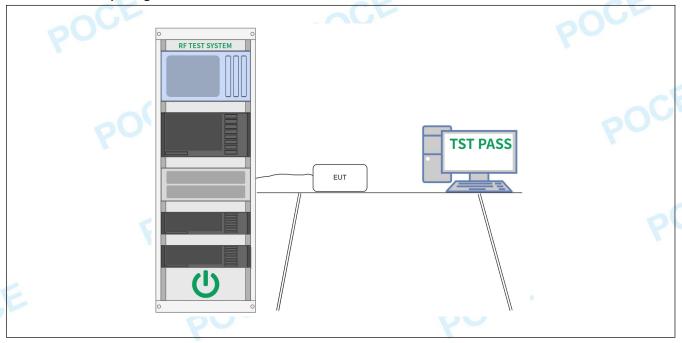
4.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	ANSI C63.10-2013 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3

4.5.1 E.U.T. Operation:

Operating Envir	onment:			CE		-CE
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa
Pretest mode:		TM1,	TM2,TM3			
Final test mode	:	TM1,	TM3			

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

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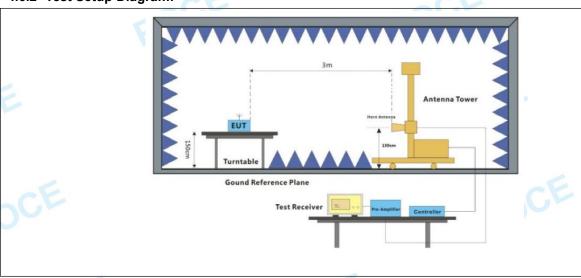
4.6 Band edge emissions (Radiated)

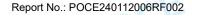
Test Requirement:	restricted bands, as defir	d), In addition, radiated emissions v ned in § 15.205(a), must also compl in § 15.209(a)(see § 15.205(c)).`	
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
-6	88-216	150 **	3
G	216-960	200 **	3
	Above 960	500	3
POCE	radiators operating under 54-72 MHz, 76-88 MHz, these frequency bands is and 15.241. In the emission table about the emission limits show employing a CISPR quasi 110–490 kHz and above	paragraph (g), fundamental emission of this section shall not be located in 174-216 MHz or 470-806 MHz. However, the tighter limit applies at the bays in the above table are based on resi-peak detector except for the frequents employing an average detector.	the frequency bands vever, operation within his part, e.g., §§ 15.231 and edges. measurements lency bands 9–90 kHz, in these three bands
Test Method:	ANSI C63.10-2013 section KDB 558074 D01 15.247		
Procedure:	ANSI C63.10-2013 section	on 6.10.5.2	

4.6.1 E.U.T. Operation:

Operating Enviro	onment:					OCE		-00
Temperature:	23.4 °C		Humidity:	47.7 %	P	Atmospheric Pressure:	101 kPa	PU
Pretest mode:		TM1,	TM2,TM3					
Final test mode:		TM1,	TM3					

4.6.2 Test Setup Diagram:

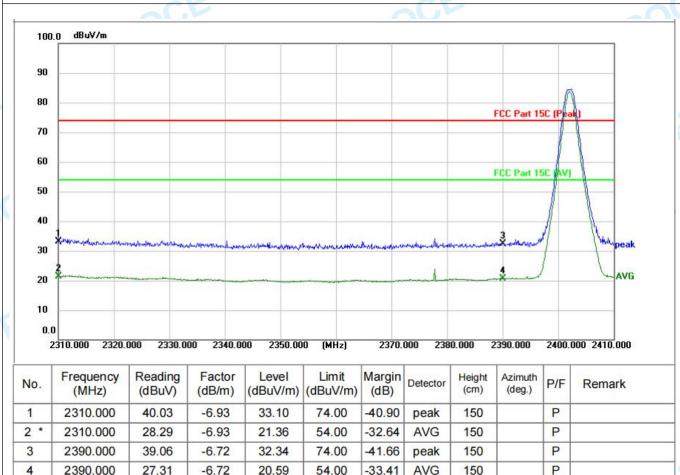






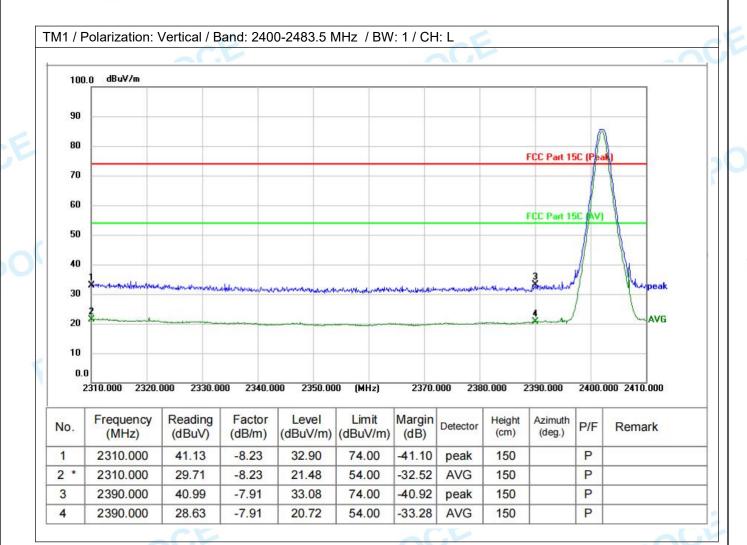
4.6.3 Test Data:

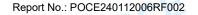
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L





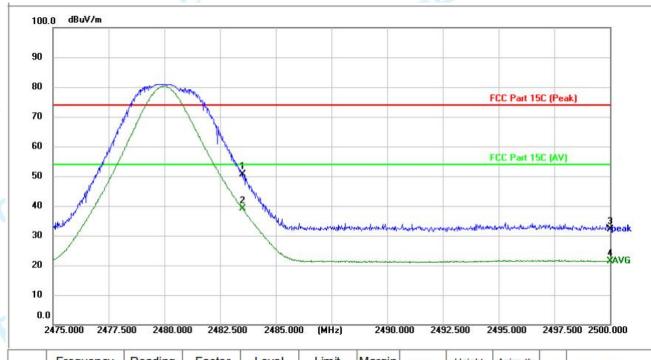








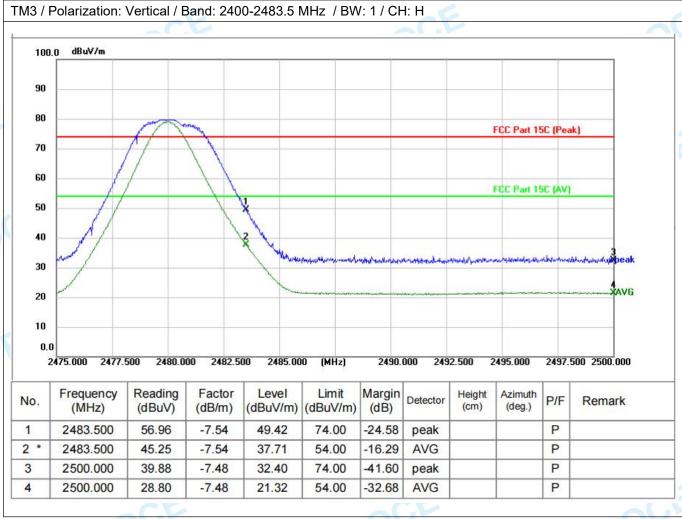
TM3 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: H



No.	Frequency (MHz)	(dBuV)	(dB/m)	(dBuV/m)		(dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	57.05	-6.47	50.58	74.00	-23.42	peak			Р	
2 *	2483.500	45.51	-6.47	39.04	54.00	-14.96	AVG			Р	
3	2500.000	38.66	-6.43	32.23	74.00	-41.77	peak			Р	
4	2500.000	27.69	-6.43	21.26	54.00	-32.74	AVG			Р	
		1						tri .			

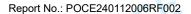
Report No.: POCE240112006RF002





Remark:

- 1. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 2.Mesurement Level = Reading level + Correct Factor, Margin= Mesurement Level Limit
 Correction Factor= Antenna Factor + Cable loss Pre-amplifier





4.7 Emissions in frequency bands (below 1GHz)

Test Requirement:	restricted bands, as defi	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).						
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)					
	0.009-0.490	2400/F(kHz)	300					
	0.490-1.705	24000/F(kHz)	30					
	1.705-30.0	30	30					
	30-88	100 **	3					
-6	88-216	150 **	3					
GE	216-960	200 **	3					
	Above 960	500	3					
POCE	radiators operating unde 54-72 MHz, 76-88 MHz, these frequency bands is and 15.241. In the emission table about the emission limits show employing a CISPR qua 110–490 kHz and above	paragraph (g), fundamental emiser this section shall not be located 174-216 MHz or 470-806 MHz. He permitted under other sections cove, the tighter limit applies at the wn in the above table are based of si-peak detector except for the free 1000 MHz. Radiated emission limitents employing an average detector.	in the frequency bands lowever, operation within of this part, e.g., §§ 15.231 band edges. In measurements equency bands 9–90 kHz, nits in these three bands					
Test Method:	ANSI C63.10-2013 secti KDB 558074 D01 15.24	on 6.6.4 7 Meas Guidance v05r02	PO					



Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete. Remark:
- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor "C Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

4.7.1 E.U.T. Operation:

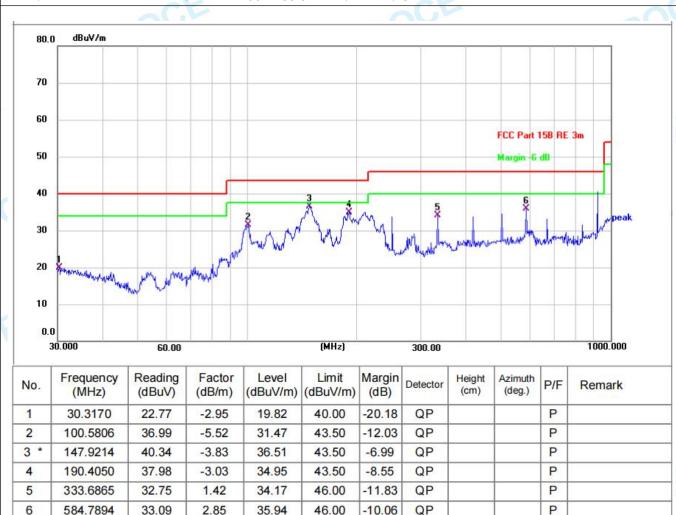
Operating Envir	onment:				000		0
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa	
Pretest mode:		TM1					
Final test mode:		TM1					

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4.7.2 Test Data:

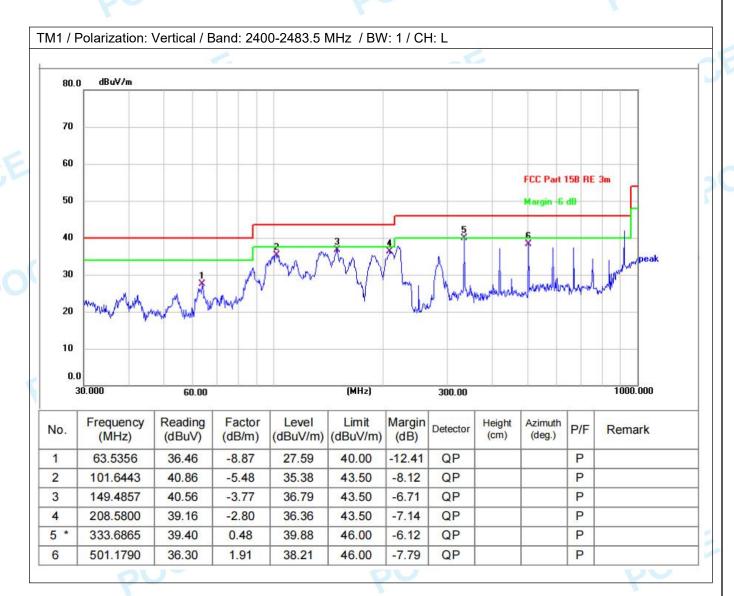
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L



Report No.: POCE240112006RF002









4.8 Emissions in frequency bands (above 1GHz)

Test Requirement:	15.205(a), must also con	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`							
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)						
	0.009-0.490	2400/F(kHz)	300						
	0.490-1.705	24000/F(kHz)	30						
	1.705-30.0	30	30						
	30-88	100 **	3						
-6	88-216	150 **	3						
CE	216-960	200 **	3						
	Above 960	500	3						
POCE	radiators operating unde 54-72 MHz, 76-88 MHz, these frequency bands is and 15.241. In the emission table about the emission limits show employing a CISPR quast 110–490 kHz and above	paragraph (g), fundamental emission rethis section shall not be located in a 174-216 MHz or 470-806 MHz. However, the tighter limit applies at the base on in the above table are based on mesi-peak detector except for the frequency 1000 MHz. Radiated emission limits ents employing an average detector	the frequency bands ever, operation within his part, e.g., §§ 15.231 and edges. heasurements ency bands 9–90 kHz, is in these three bands						
Test Method:	ANSI C63.10-2013 section KDB 558074 D01 15.247	on 6.6.4 7 Meas Guidance v05r02	PO						

Report No.: POCE240112006RF002



Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete. Remark:
- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor "C Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

4.8.1 E.U.T. Operation:

Operating Envir	onment:				000		
Temperature:	23.4 °C		Humidity:	47.7 %	Atmospheric Pressure:	101 kPa	
Pretest mode:		TM1,	TM2,TM3				
Final test mode:		TM1,	TM2,TM3		-6	A-	

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4.8.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4804.000	39.20	-0.90	38.30	74.00	-35.70	peak	150		Р	
2	4804.000	28.15	-0.90	27.25	54.00	-26.75	AVG	150		Р	
3	7206.000	36.46	4.13	40.59	74.00	-33.41	peak	150		Р	
4	7206.000	25.76	4.13	29.89	54.00	-24.11	AVG	150		Р	
5	9608.000	36.18	8.09	44.27	74.00	-29.73	peak	150		Р	
6 *	9608.000	24.89	8.09	32.98	54.00	-21.02	AVG	150		Р	

Report No.: POCE240112006RF002

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4804.000	39.94	-0.28	39.66	74.00	-34.34	peak	150		Р	
2	4804.000	28.23	-0.28	27.95	54.00	-26.05	AVG	150		Р	
3	7206.000	36.45	4.09	40.54	74.00	-33.46	peak	150		Р	
4	7206.000	25.72	4.09	29.81	54.00	-24.19	AVG	150		Р	
5	9608.000	36.11	8.02	44.13	74.00	-29.87	peak	150		Р	
6 *	9608.000	24.94	8.02	32.96	54.00	-21.04	AVG	150		Р	



Report No.: POCE240112006RF002

TM2 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4880.000	37.34	-0.03	37.31	74.00	-36.69	peak	150		Р	
2	4880.000	26.27	-0.03	26.24	54.00	-27.76	AVG	150		Р	
3	7320.000	35.68	4.36	40.04	74.00	-33.96	peak	150		Р	
4	7320.000	25.00	4.36	29.36	54.00	-24.64	AVG	150		Р	
5	9760.000	35.66	8.12	43.78	74.00	-30.22	peak	150		Р	
6 *	9760.000	24.96	8.12	33.08	54.00	-20.92	AVG	150		Р	

TM2 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4880.000	38.36	-0.65	37.71	74.00	-36.29	peak	150		Р	
2	4880.000	26.87	-0.65	26.22	54.00	-27.78	AVG	150		Р	
3	7320.000	36.73	4.31	41.04	74.00	-32.96	peak	150		Р	
4	7320.000	25.07	4.31	29.38	54.00	-24.62	AVG	150		Р	
5	9760.000	35.92	8.09	44.01	74.00	-29.99	peak	150		Р	
6 *	9760.000	24.85	8.09	32.94	54.00	-21.06	AVG	150		Р	



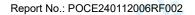
Report No.: POCE240112006RF002

TM3 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4960.000	38.61	-0.37	38.24	74.00	-35.76	peak	150		Р	
2	4960.000	26.72	-0.37	26.35	54.00	-27.65	AVG	150		Р	
3	7440.000	36.70	4.49	41.19	74.00	-32.81	peak	150		Р	
4	7440.000	25.25	4.49	29.74	54.00	-24.26	AVG	150		Р	
5	9920.000	37.24	8.08	45.32	74.00	-28.68	peak	150		Р	
6 *	9920.000	25.38	8.08	33.46	54.00	-20.54	AVG	150		Р	

TM3 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4960.000	36.84	0.23	37.07	74.00	-36.93	peak	150		Р	
2	4960.000	26.24	0.23	26.47	54.00	-27.53	AVG	150		Р	
3	7440.000	36.86	4.64	41.50	74.00	-32.50	peak	150		Р	
4	7440.000	24.98	4.64	29.62	54.00	-24.38	AVG	150		Р	
5	9920.000	36.13	8.23	44.36	74.00	-29.64	peak	150		Р	
6 *	9920.000	25.13	8.23	33.36	54.00	-20.64	AVG	150		Р	
-										_	





5 TEST SETUP PHOTOS

Please refer to Setup Photo file

6 PHOTOS OF THE EUT

Please refer to external photos file and internal photos file

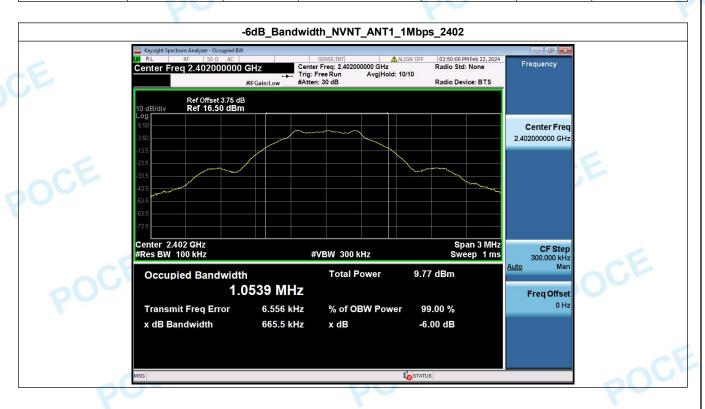
Appendix



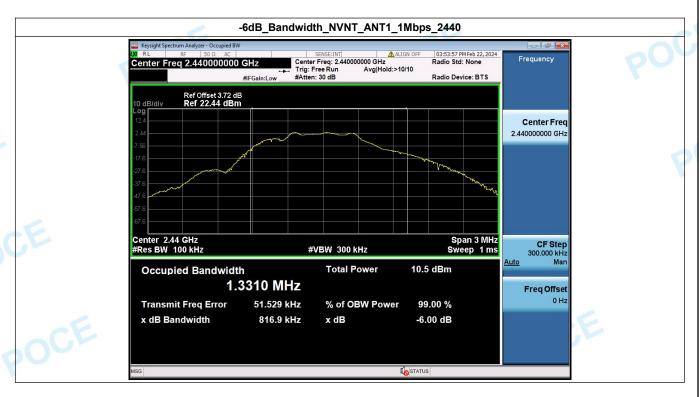
HT240112007--Eco Smart Display--BLE--FCC FCC_BLE (Part15.247) Test Data

1. -6dB Bandwidth

Condition Antenna		Rate	Frequency (MHz)	-6dB BW(kHz)	limit(kHz)	Result
NVNT	ANT1	1Mbps	2402	665.53	500	Pass
NVNT	ANT1	1Mbps	2440.00	816.86	500	Pass
NVNT	ANT1	1Mbps	2480	914.28	500	Pass







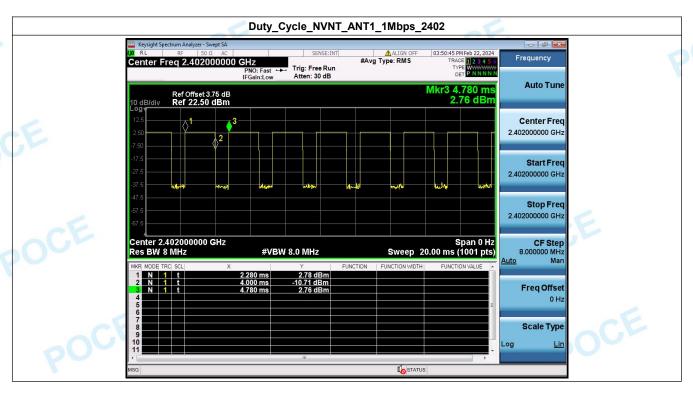


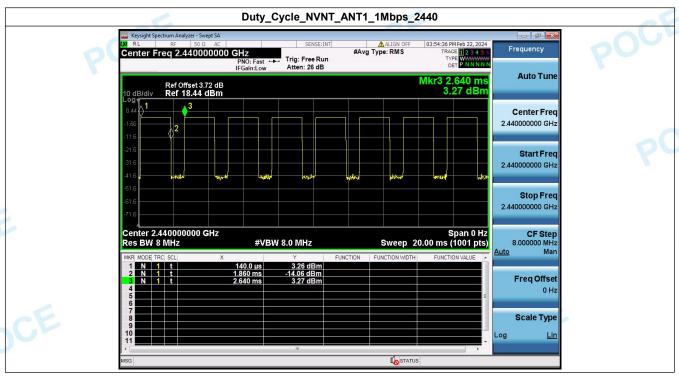


2. Duty Cycle

V1.0

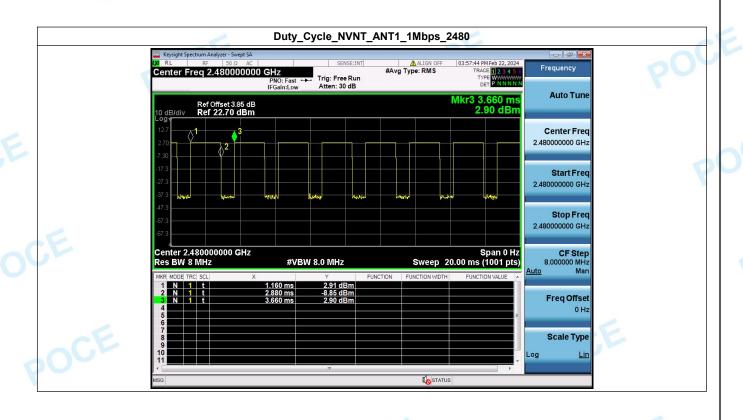
Condition	Antenna	Rate	Frequency (MHz)	Dutycycle(%)	Duty_factor
NVNT	ANT1	1Mbps	2402	69.60	1.57
NVNT	ANT1	1Mbps	2440.00	68.80	1.62
NVNT	ANT1	1Mbps	2480	69.60	1.57





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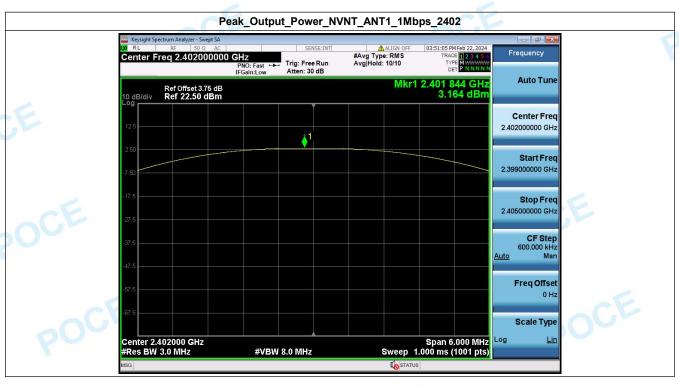


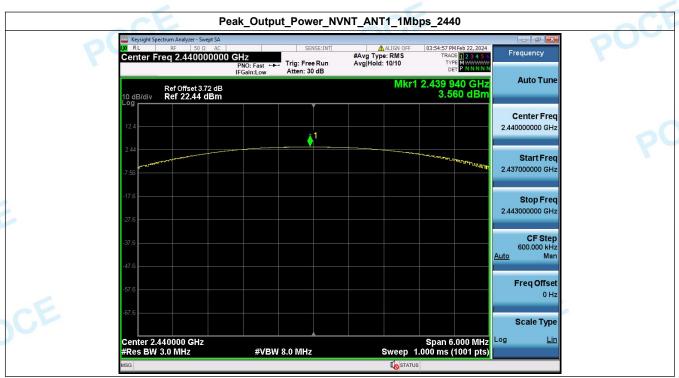


3. Peak Output Power

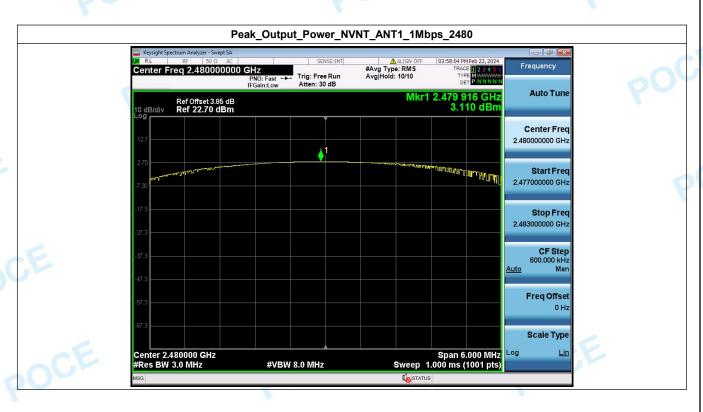
V1.0

Condition	Antenna	ntenna Rate Frequency (MHz) Max. Conducted Power(dBm)		Max. Conducted Power(mW)	Limit(mW)	Result	
NVNT	ANT1	1Mbps	2402	3.16	2.07	1000	Pass
NVNT	ANT1	1Mbps	2440.00	3.56	2.27	1000	Pass
NVNT	ANT1	1Mbps	2480	3.11	2.05	1000	Pass





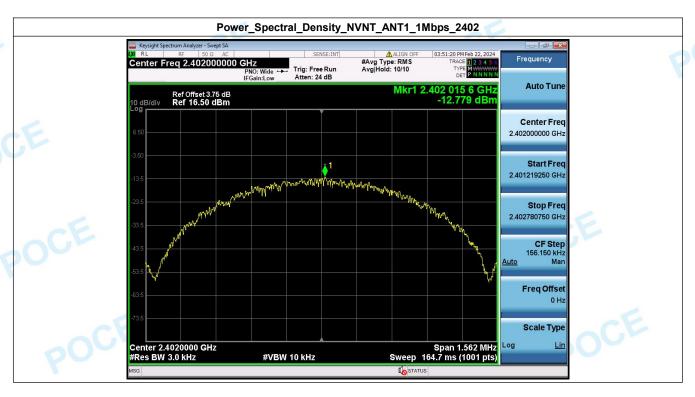






4. Power Spectral Density

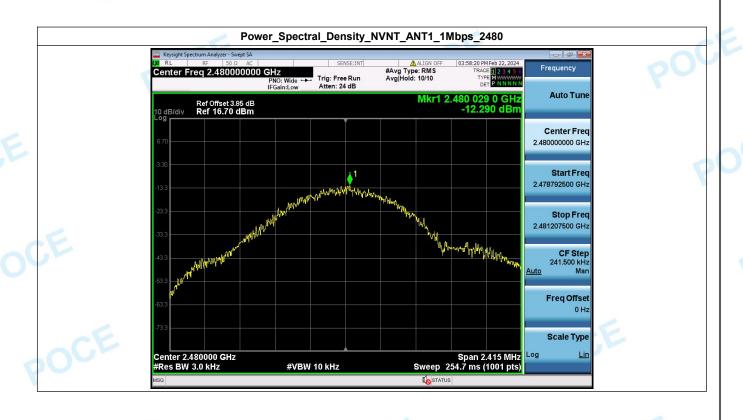
Condition	Antenna	Rate	Frequency (MHz)	Power Spectral Density(dBm)	Limit(dBm/3kHz)	Result
NVNT	ANT1	1Mbps	2402	-12.78	8	Pass
NVNT	ANT1	1Mbps	2440.00	-11.74	8	Pass
NVNT	ANT1	1Mbps	2480	-12.29	8	Pass





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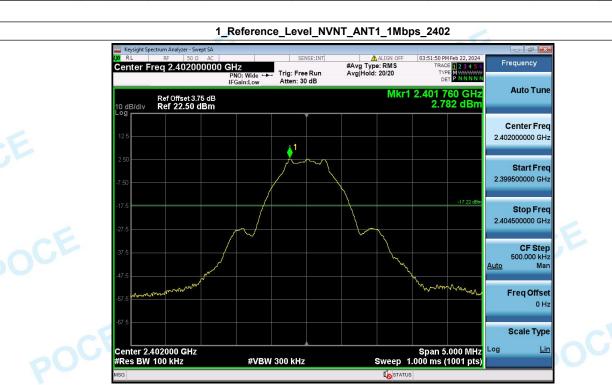




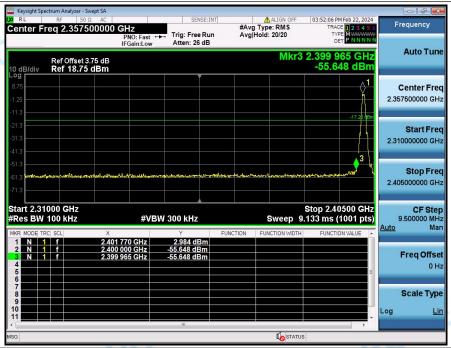
5. Bandedge

V1.0

Condition	Antenna	Rate	TX_Frequency (MHz)	Max. Mark Frequency (MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	1Mbps	2402	2399.965	-55.648	-17.218	Pass
NVNT	ANT1	1Mbps	2480	2483.525	-60.161	-17.231	Pass



2_Bandedge_NVNT_ANT1_1Mbps_2402





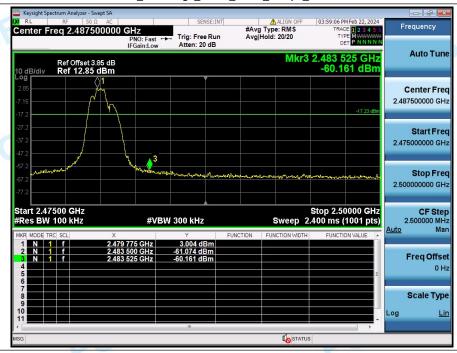
V1.0



Report No.: POCE240112006RF002



2_Bandedge_NVNT_ANT1_1Mbps_2480





6. Spurious Emission

V1.0

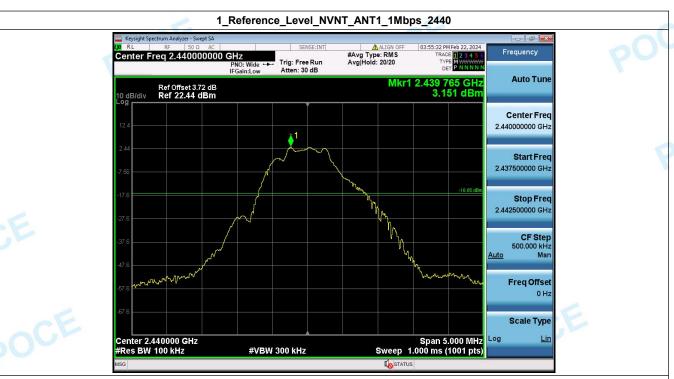
Condition	Antenna	Rate	TX_Frequency(MHz)	Spurious MAX.Value(dBm)	Limit	Result
NVNT	ANT1	1Mbps	2402	-43.250	-17.218	Pass
NVNT	ANT1	1Mbps	2440.00	-38.175	-16.849	Pass
NVNT	ANT1	1Mbps	2480	-45.667	-17.231	Pass



2_Spurious_Emission_NVNT_ANT1_1Mbps_2402



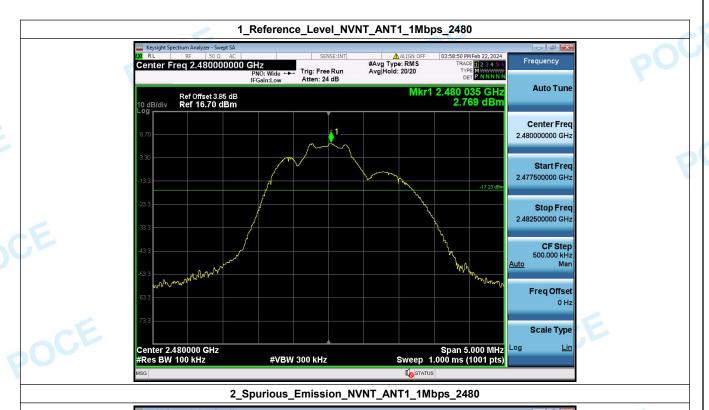








V1.0





STATUS