

Report No.: SEWM2212000310RG02

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### **TEST REPORT**

**Application No.:** SEWM2212000310RG

Applicant: Sony Corporation

**Address of Applicant:** 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Manufacturer: Sony Corporation

**Address of Manufacturer:** 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, NFC and GNSS **EUT Description:** 

**Trade Mark:** Sony

FCC ID: PY7-38431P

Standards: FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart C

**Date of Receipt:** 2022/11/30

2022/12/26 to 2023/01/10 (for original report SEWM2212000308RG02) **Date of Test:** 

2022/12/26 to 2023/01/10 (for new report SEWM2212000310RG02)

Date of Issue: 2023/03/09

Test Result: PASS \*

In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Panta Sun Wireless Laboratory Manager



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#### 1 Version

Revision Record					
Version	Chapter	Date Modifier Remark			
01		2023/01/13		Original	
02		2023/02/24		Updated page 79, page 84 and Page 87~100	
03		2023/03/09		<ol> <li>Updated spot check evaluation on Page 4.</li> <li>Add variant model and parent model data reference description.</li> </ol>	

This report supersedes our previous report SEWM2212000310RG02, issued on 2023/02/24, which is hereby deemed null and void.

Prepared By	(Ives Cheng) / Test Engineer
Checked By	(Well Wei) / Reviewer



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2 Test Summary

Test Item	FCC Rule No.	Test Method	Test Result	Result
Antenna Requirement	15.203/15.247(b)		Clause 4.1	PASS
AC Power Line Conducted Emission	15.207	ANSI C63.10 (2013) Section 6.2	Clause 4.3	PASS
Conducted Peak Output Power	15.247 (b)(1)	ANSI C63.10 (2013) Section 11.9.2.3	Clause 4.4	PASS*
20dB Emission Bandwidth & 99% Occupied Bandwidth	15.247 (a)(1)	ANSI C63.10 (2013) Section 6.9.2/6.9.3	Clause 4.5	Reporting only
Carrier Frequencies Separation	15.247 (a)(1)	ANSI C63.10 (2013) Section 7.8.2	Clause 4.6	PASS
Hopping Channel Number	15.247 (a)(1)	ANSI C63.10 (2013) Section 7.8.3	Clause 4.7	PASS
Dwell Time	15.247 (a)(1)	ANSI C63.10 (2013) Section 7.8.4	Clause 4.8	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 (2013) Section 7.8.7.2	Clause 4.9	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 (2013) Section 7.8.7.1	Clause 4.10	PASS
Radiated Spurious emissions	15.247(d); 15.205/15.209	ANSI C63.10 (2013) Section 6.4 / 6.5 / 6.6	Clause 4.11	PASS*
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d); 15.205/15.209	ANSI C63.10 (2013) Section 7.8.8.3	Clause 4.12	PASS*

Remark: "PASS\*" There is FCC ID PY7-38431P (this model) spot check data. "Pass" refers to FCC ID PY7-51629L (lead) data.



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#### Remark:

This test report (Report No.: SEWM2212000310RG02 issue on 2023/03/09) is based on the original test report (Report No.: SEWM2212000308RG02 issue on 2023/02/23).

#### Difference section:

Sony corporation, hereby declares FCC ID PY7-38431P(this model) is the variant from FCC ID PY7-51629L(lead). They have the same dimension and share the same PCB layout, antennas and components in WLAN, Bluetooth and NFC transmitter. Along with the spot check verification data following the FCC KDB 484596 D01 v01.

#### Reference detail section:

Therefore in this report items of Power, Transmitter emission Above 1GHz and Restricted bands around fundamental frequency were performed based on the worst case of the original report with report number SEWM2212000308RG02 issue on 2023/02/23 and other test data in this report are reused from the previous report with report number SEWM2212000308RG02 issue on 2023/02/23.

#### Summary of the Spot check:

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing and the verification test results similar to the original FCC ID. All tests meet FCC technical limits. Detail sport check test result can be found in the variant model report.

Test Item	PY7-38431P Worst Result	PY7-51629L Worst Result	Difference(dB)
Conducted Peak Output	Peak: 9.43	Peak: 9.61	Peak: -0.18
Power	Average: 8.12	Average: 8.75	Average: -0.63
Radiated Spurious emissions	Peak: 44.11	Peak: 44.78	Peak: -0.67
	Average: 19.35	Average: 20.22	Average: -0.87
Restricted bands around fundamental frequency (Radiated Emission)	Peak: 43.62	Peak: 43.46	Peak: 0.16
	Average: 18.86	Average: 18.70	Average: 0.16



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#### 3 General Information

#### 3.1 Details of Client

Applicant:	Sony Corporation
Address of Applicant:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer:	Sony Corporation
Address of Manufacturer:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

#### 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test engineer:	Ives Cheng, Tizzy Song

#### 3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### • A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

#### • Innovation, Science and Economic Development Canada

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

#### • FCC –Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an

accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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#### 3.4 General Description of EUT

EUT Description:	GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, NFC and GNSS			
Trade Mark:	Sony			
Hardware Version:	A			
Software Version:	0.124			
CNI	RF Conducted HQ62B20407 HQ62B2094E			
SN:	RSE & AC power line	HQ62B2030D HQ62B208EB		
Operation Frequency:	2400MHz~2483.5MHz fc = 2402 MHz + N * 1 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 0 to 78.			
Bluetooth version:	Bluetooth V5.1			
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)			
Modulation Type:	GFSK, π/4DQPSK, 8DPSK			
Number of Channel:	79	79		
Hopping Channel Type:	Adaptive Frequency H	Adaptive Frequency Hopping systems		
Antenna Type:	PIFA Antenna			
Antenna Gain:	-0.7dBi(Ant6)	-0.7dBi(Ant6)		
RF Cable:	1.0dB			
Remark:	_			

Remark:

As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.



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

#### Remark:

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:

Channel	Frequency
The Lowest channel(CH0)	2402MHz
The Middle channel(CH39)	2441MHz
The Highest channel(CH78)	2480MHz



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#### 3.5 Test Environment

Environment Parameter	101.0 kPa Selected Values During Tests			
Relative Humidity	44-46 % RH Ambient			
Value	Temperature(°C)	Voltage(V)		
NTNV	22~23	3.89		
Remark:				

NV: Normal Voltage NT: Normal Temperature

#### 3.6 Description of Support Units

The EUT has been tested as an independent unit.



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#### 4 Test results and Measurement Data

#### 4.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(b)

15.203 requirement: 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, 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.

15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The antenna is PIFA Antenna and no consideration of replacement.

The best case gain of the antenna is -0.7dBi(Ant6).



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#### 4.2 Other requirements Frequency Hopping Spread Spectrum System **Hopping Sequence**

#### 4.2.1 **Test Requirement:**

47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)

#### 4.2.2 Conclusion

Standard Requirement:

The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

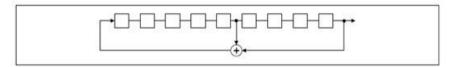
Compliance for section 15.247(a)(1):

According to Technical Specification, the pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- > Number of shift register stages: 9
- > Length of pseudo-random sequence: 29 -1 = 511 bits
- > Longest sequence of zeros: 8 (non-inverted signal)

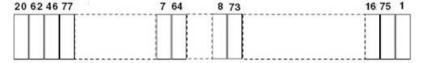
Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.



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According to Technical Specification, the receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any transmitters and shift frequencies in synchronization with the transmitted signals.

Compliance for section 15.247(g):

According to Technical Specification, the system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the RF system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

Compliance for section 15.247(h):
According to Technical specification, the system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels. The system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.



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#### 4.3 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207			
Test Method:	ANSI C63.10: 2013 Section 6.2			
Test Frequency Range:	150kHz to 30MHz			
Receiver Setup:	RBW = 9kHz, VBW = 30	kHz		
Limit:	Fraguency range (MIII-)	Limit (d	BuV)	
	Frequency range (MHz)	Quasi-peak	Average	
	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	
	5-30	60	50	
	* Decreases with the log	arithm of the frequency.		
Test Procedure:	<ul> <li>* Decreases with the logarithm of the frequency.</li> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to</li> </ul>		through a LISN 1 (Line a 50Ω/50μH + 5Ω linear nits of the EUT were I to the ground reference unit being measured. A ultiple power cables to a of exceeded. In the EUT was rence plane. The rear of a dreference plane. The reference plane. The potential ground from the boundary of the rence plane for LISNs is distance was between I other units of the EUT in the LISN 2.	



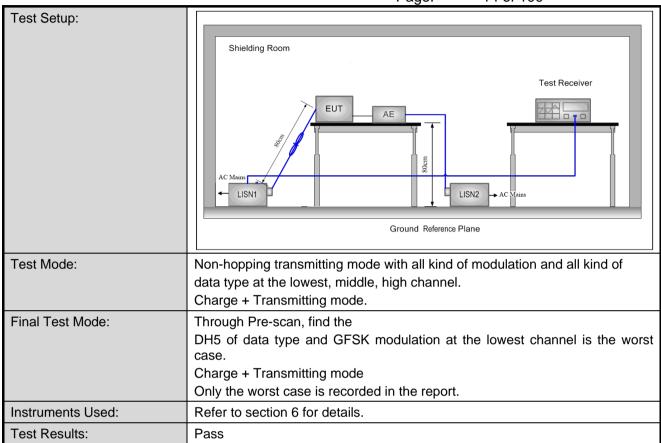
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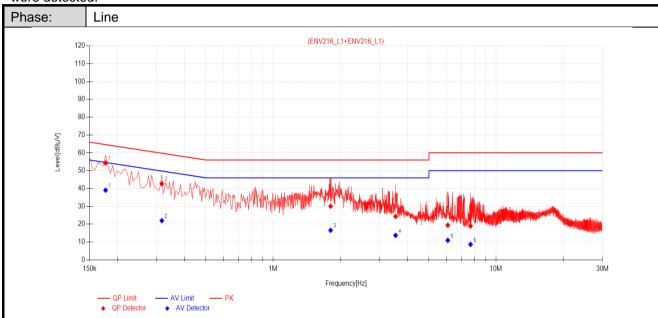
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#### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Final I	Final Data List										
NO.	Frequency [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.1770	10.75	43.55	54.30	64.63	10.33	28.31	39.06	54.63	15.57	PASS
2	0.3165	10.58	32.14	42.72	59.80	17.08	11.42	22.00	49.80	27.80	PASS
3	1.8105	10.72	19.36	30.08	56.00	25.92	5.88	16.60	46.00	29.40	PASS
4	3.5430	10.70	13.66	24.36	56.00	31.64	3.02	13.72	46.00	32.28	PASS
5	6.0765	10.68	8.76	19.44	60.00	40.56	0.27	10.95	50.00	39.05	PASS
6	7.6875	10.69	8.29	18.98	60.00	41.02	-2.01	8.68	50.00	41.32	PASS

#### Remark

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Value =Reading[dBµV] + Factor(Lisn factor[dB] + cable loss[dB]).
- 3. Margin = Limit[dBµV] Value[dBµV]



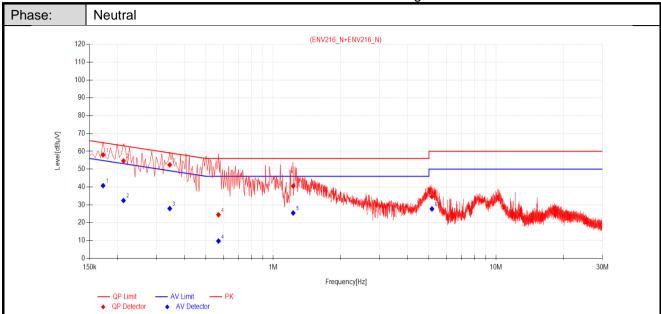
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Final	Final Data List										
NO.	Frequency [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.1725	10.71	47.31	58.02	64.84	6.82	30.04	40.75	54.84	14.09	PASS
2	0.2130	10.68	43.95	54.63	63.09	8.46	21.73	32.41	53.09	20.68	PASS
3	0.3435	10.80	41.63	52.43	59.12	6.69	17.12	27.92	49.12	21.20	PASS
4	0.5685	10.72	13.70	24.42	56.00	31.58	-1.03	9.69	46.00	36.31	PASS
5	1.2300	10.78	29.76	40.54	56.00	15.46	14.64	25.42	46.00	20.58	PASS
6	5.1585	10.63	24.01	34.64	60.00	25.36	17.08	27.71	50.00	22.29	PASS

#### Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Value = Reading[dB $\mu$ V] + Factor(Lisn factor[dB] + cable loss[dB]).
- 3. Margin = Limit[ $dB\mu V$ ] Value[ $dB\mu V$ ]



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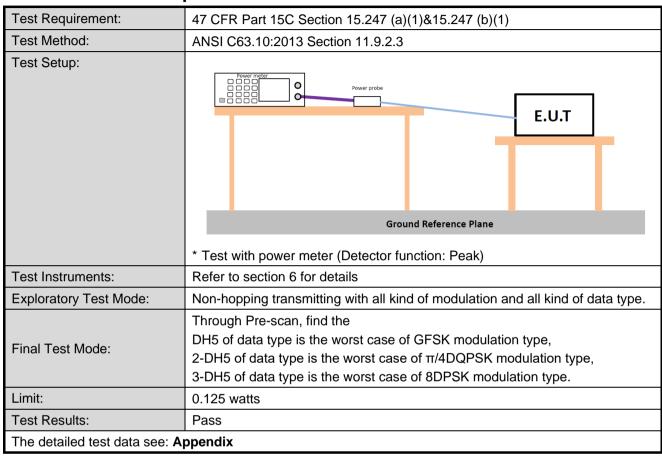


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#### 4.4 Conducted Output Power





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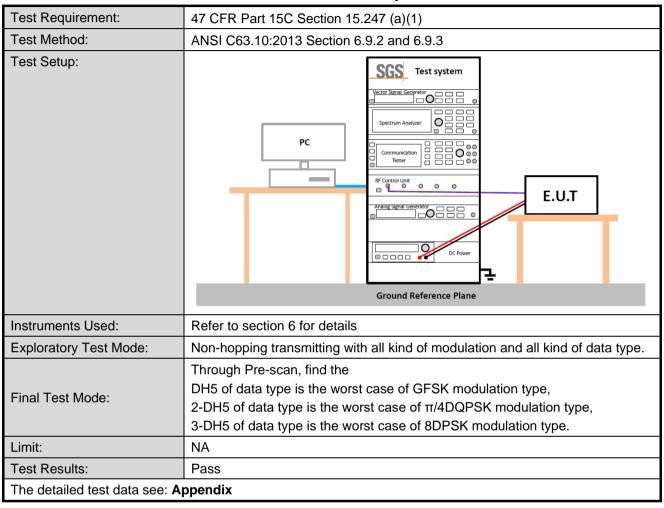


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#### 4.5 20dB Emission Bandwidth & 99% Occupied Bandwidth





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#### 4.6 Carrier Frequencies Separationy

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)					
Test Method:	ANSI C63.10:2013 Section 7.8.2					
Test Setup:	PC    Spectrum Analyzer   O   O   O   O   O   O   O   O   O					
Test Instruments:	Refer to section 6 for details					
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type.					
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.					
Limit:	2/3 of the 20dB bandwidth					
	Remark: the transmission power is less than 0.125W.					
Test Results:	Pass					
The detailed test data see: A	ppendix					



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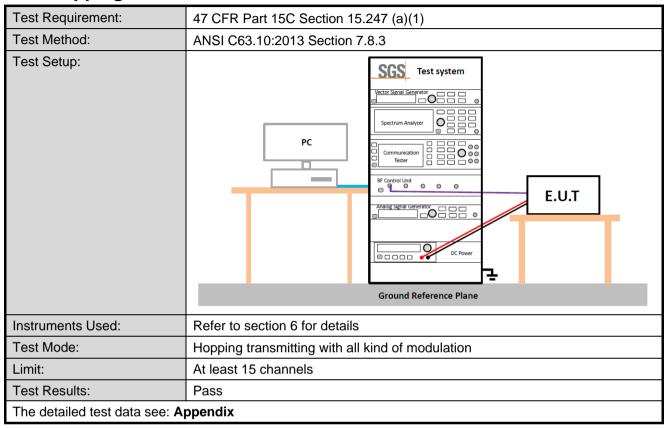


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#### 4.7 Hopping Channel Number





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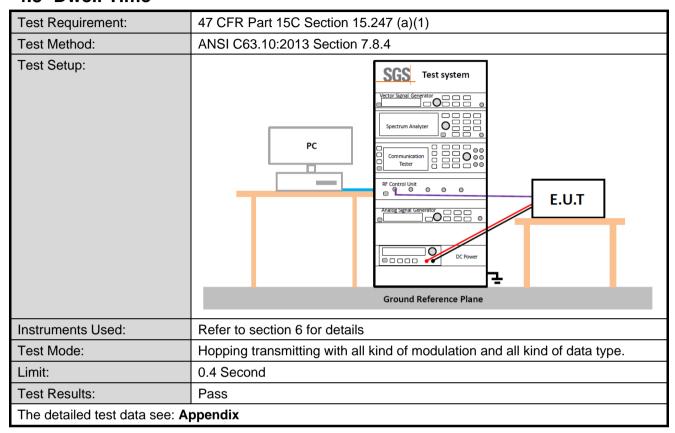


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#### 4.8 Dwell Time





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### 4.9 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)				
Test Method:	ANSI C63.10:2013 Section 7.8.7.2				
Test Setup:	PC    Spectrum Analyzer   O   O   O   O   O   O   O   O   O				
Instruments Used:	Refer to section 6 for details				
Exploratory Test Mode:	Hopping and Non-hopping transmitting with all kind of modulation and all kind of data type.				
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.				
Test Results:	Pass				
The detailed test data see: A	ppendix				



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#### **4.10 Spurious RF Conducted Emissions**

Test Requirement:	47 CFR Part 15C Section 15.247 (d)					
Test Method:	ANSI C63.10:2013 Section 7.8.7.1					
Test Setup:	PC    Spectrum Analyzer   O   O   O   O   O   O   O   O   O					
Instruments Used:	Refer to section 6 for details					
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type.					
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.					
Test Results:	Pass					
The detailed test data see: A	ppendix					



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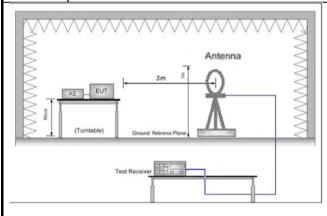
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#### 4.11 Radiated Spurious Emissions

	- I							
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205							
Test Method:	ANSI C63.10 :2013 Section	on 6.4 / 6.5 / 6.6						
Test Site:	Measurement Distance: 3	m (Semi-Anechoid	Chamber)					
Test Frequency:	9kHz ~ 25GHz							
Limit:	Frequency Field strength Limit Remark Measurement (microvolt/meter) (dBuV/m) Remark distance (m)							
0.009MHz-0.490MHz 2400/F(kHz)								
	0.490MHz-1.705MHz 24000/F(kHz)							
	1.705MHz-30MHz 30							
	30MHz-88MHz 100 40.0 Quasi-peak 3							
	88MHz-216MHz 150 43.5 Quasi-peak							
	216MHz-960MHz	200	46.0	Quasi-peak	3			
	960MHz-1GHz	500	54.0	Quasi-peak	3			
	Above 1GHz 500 54.0 Average 3							
	Remark: 15.35(b),Unless otherwise specified, the limit on peak radio frequency							
	emissions is 20dB above	emissions is 20dB above the maximum permitted average emission limit						
	applicable to the equipme level radiated by the device		peak limit ap	oplies to the tot	al peak emission			

#### Test Setup:



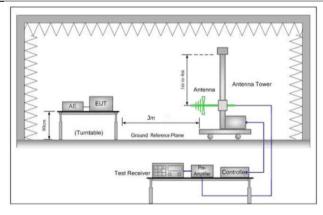


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz



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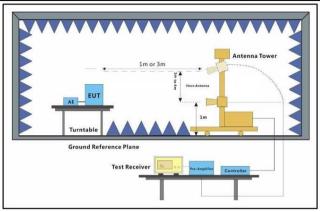


Figure 3. Above 1 GHz

#### Test Procedure:

- 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 camber. 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 semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
  - (Distance from antenna to EUT is 1m for measurements >18GHz).
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- Test the EUT in the lowest channel, the middle channel ,the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
- Repeat above procedures until all frequencies measured was complete.
- The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported
- The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed.
- At a measurement distance of 1 meter the limit line was increased by 20\*LOG(3/1) = 9.54 dB.

#### **Test Configuration:**

Measurements Below 1000MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

Peak Measurements Above 1000 MHz



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	Fage. 20 01 100
	• RBW = 1 MHz
	• VBW ≥ 3 MHz
	Detector = Peak
	Sweep time = auto
	Trace mode = max hold
	Average Measurements Above 1000MHz
	Use duty cycle correction factor method per 15.35(c).
	Duty cycle = On time / 100 milliseconds
	On time = $N_1*L_1 + N_2*L_2+N_{N-1}*L_{N-1} + N_N*L_N$
	Where $N_1$ is number of type 1 pulese, $L_1$ is length of type 1 pulses, etc.
	Average Value = Peak Value +20*log(Duty cycle).
Exploratory Test	Non-hopping transmitting mode with all kind of modulation and all kind of
Mode:	data type
	Charge + Transmitting mode.
	Through Pre-scan, find the
	DH5 of data type and GFSK modulation is the worst case.
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode
	For below 1GHz part, through pre-scan, the worst case is the lowest channel.
	Only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data	a see: <b>Appendix</b>



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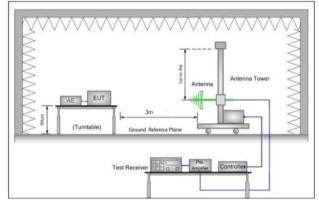
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#### 4.12Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205								
Test Method:	ANSI C63.10: 2013 Section	ANSI C63.10: 2013 Section 7.8.8.3							
Test Site:	Measurement Distance: 3m	Measurement Distance: 3m (Semi-Anechoic Chamber)							
Limit:	Frequency Limit (dBuV/m) Remark								
	30MHz-88MHz	40.0	Quasi-peak						
	88MHz-216MHz	43.5	Quasi-peak						
	216MHz-960MHz	46.0	Quasi-peak						
	960MHz-1GHz	54.0	Quasi-peak						
	Above 1GHz	54.0	Average Value						
	Above IGHZ	74.0	Peak Value						

#### Test Setup:



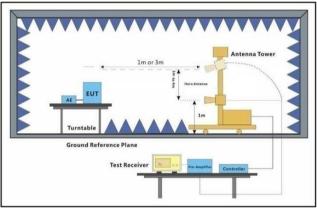


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

#### Test 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 camber. 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 semi-anechoic camber. 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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. Place a marker at the end of the restricted band closest to the transmit



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	· · · · · · · · · · · · · · · · · · ·
	frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel  h. Test the EUT in the lowest 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 worse case.  j. Repeat above procedures until all frequencies measured was complete.
Test Configuration:	Measurements Below 1000MHz
gg	• RBW = 120 kHz
	• VBW = 300 kHz
	Detector = Peak
	Trace mode = max hold
	Peak Measurements Above 1000 MHz
	• RBW = 1 MHz
	• VBW ≥ 3 MHz
	Detector = Peak
	Sweep time = auto
	Trace mode = max hold
	Average Measurements Above 1000MHz
	Use duty cycle correction factor method per 15.35(c).
	Duty cycle = On time / 100 milliseconds
	On time = $N_1*L_1 + N_2*L_2+N_{N-1}*L_{N-1} + N_N*L_N$
	Where $N_1$ is number of type 1 pulese, $L_1$ is length of type 1 pulses, etc.
	Average Value = Peak Value +20*log(Duty cycle).
	Non-hopping transmitting mode with all kind of modulation and all kind of
Exploratory Test Mode:	data type
	Charge + Transmitting mode.
	Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case.
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode,
	Only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see	: Appendix



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#### 5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.54dB
2	RF power density, conducted	±1.03dB
3	Spurious emissions, conducted	±0.54dB
4	Radio Frequency	±1.0 %
5	Duty Cycle	±0.37%
6	Occupied Bandwidth	±1.0 %
7	Conduction Emission	± 2.90dB (150kHz to 30MHz)
		± 3.13dB (9k -30MHz)
0	Dodieted Emissies	± 4.88dB (30M -1GHz)
8	Radiated Emission	± 4.75dB (1GHz to 18GHz)
		± 4.77dB (Above 18GHz)

#### Remark:

The Ulab Uncertainty) is less than UcispiteTSI (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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6 Equipment List

RF Test Equipment							
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)		
Shielding Room	Brilliant-emc	N/A	SUWI-04-01-06	2021/05/08	2024/05/07		
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2022/02/16	2023/02/15		
Signal Analyzer	ROHDE& SCHWARZ	FSV3030	SUWI-01-02-02	2022/05/17	2023/05/16		
Measurement Software	Tonscend	JS1120-3 Test System V3.1.55	SUWI-02-09-09	NCR	NCR		
Signal Analyzer	ROHDE& SCHWARZ	FSW43	SUWI-01-02-04	2022/05/28	2023/05/27		
Wideband Radio Communication Tester	ROHDE& SCHWARZ	CMW500	SUWI-01-16-05	2022/02/14	2023/02/13		
DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	2022/02/15	2023/02/14		
Power meter	Anritsu	ML2495A	SUWI-01-31-01	2022/11/23	2023/11/22		
Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	2022/11/23	2023/11/22		
MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	2022/02/14	2023/02/13		
Temperature Chamber	ESPEC	SU-242	SUWI-01-13-01	2022/02/15	2023/02/14		

CE Test System							
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)		
Shielding Room	Brilliant-emc	N/A	SUWI-04-03-01	2021/05/08	2024/05/07		
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/02/19	2023/02/18		
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-06	2022/02/16	2023/02/15		
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-01	2022/02/19	2023/02/18		
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-02	2022/02/19	2023/02/18		
Measurement Software	Tonscend	JS32-CE 4.0.0.2	SUWI-02-09-05	NCR	NCR		



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RSE Test System									
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)				
Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-02	2021/11/25	2024/11/24				
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-15	2022/02/16	2023/02/15				
Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2022/05/28	2023/05/27				
Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-06	2022/11/23	2023/11/22				
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/02/19	2023/02/18				
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	VULB 9163	SUWI-01-11-04	2021/12/05	2023/12/04				
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9120D	SUWI-01-11-05	2021/12/05	2023/12/04				
Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9170	SUWI-01-11-03	2021/05/14	2023/05/13				
Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	2021/06/10	2023/06/09				
Amplifier	Tonscend	TAP9K3G32	SUWI-01-14-06	2022/11/23	2023/11/22				
Amplifier	Tonscend	TAP01018050	SUWI-01-14-04	2022/11/23	2023/11/22				
Amplifier	Tonscend	TAP30M7G30	SUWI-01-14-05	2022/11/23	2023/11/22				
Measurement Software	Tonscend	JS32-RE V4.0.0.0	SUWI-02-09-04	NCR	NCR				



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### 7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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# **Appendix**



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# **20dB Emission Bandwidth** Test Result

TestMode	Antenna	Frequency[MHz]	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
DH5	Ant6	2402	0.94	2401.54	2402.48	Reporting only
		2441	0.94	2440.53	2441.47	
		2480	0.95	2479.53	2480.47	
2DH5	Ant6	2402	1.28	2401.36	2402.65	
		2441	1.28	2440.36	2441.65	
		2480	1.28	2479.36	2480.65	
3DH5	Ant6	2402	1.29	2401.35	2402.64	
		2441	1.29	2440.35	2441.64	
		2480	1.29	2479.35	2480.64	



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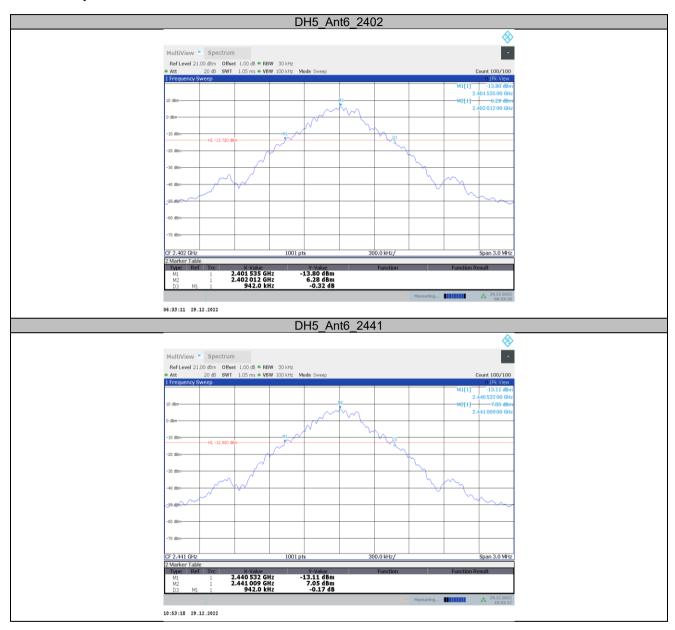


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#### **Test Graphs**





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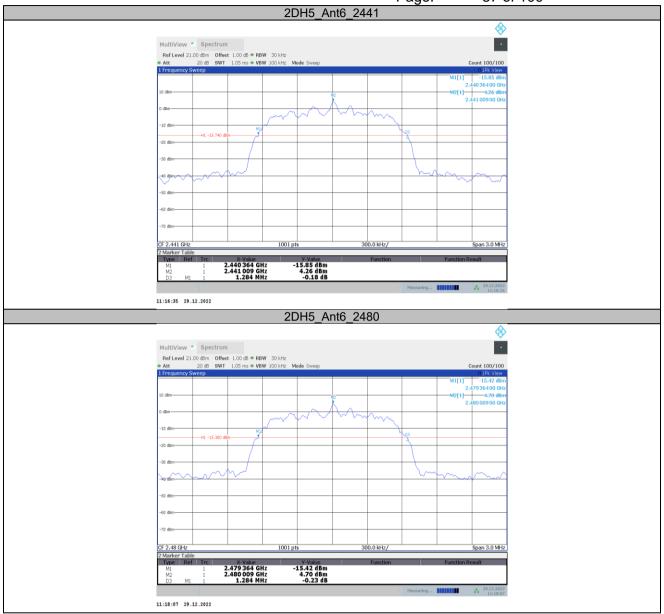
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# Occupied Channel Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
		2402	0.849	2401.569	2402.418	
DH5	Ant6	2441	0.849	2440.567	2441.415	
		2480	0.848	2479.565	2480.413	
		2402	1.173	2401.406	2402.579	Doporting
2DH5	Ant6	2441	1.171	2440.407	2441.415 2480.413	
		2480	1.172	2479.405	2480.577	Offig
		2402	1.175	2401.409	2402.584	
3DH5	Ant6	2441	1.174	2440.409	2441.584	
		2480	1.177	2479.407	2480.583	



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#### **Test Graphs**





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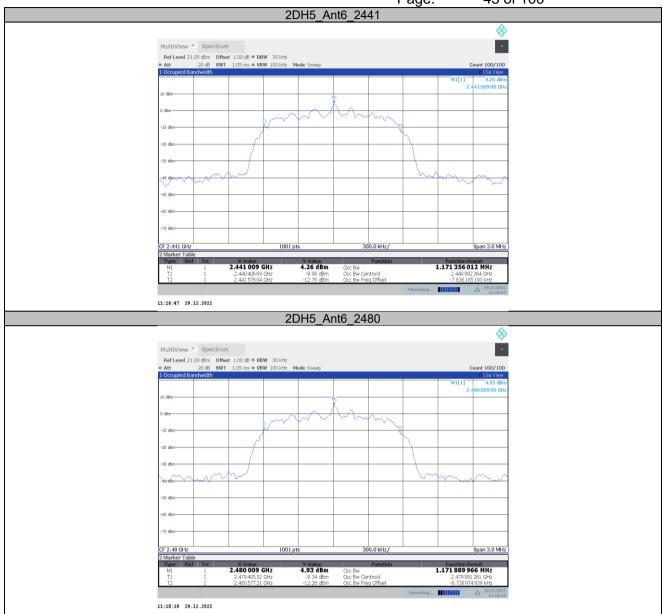
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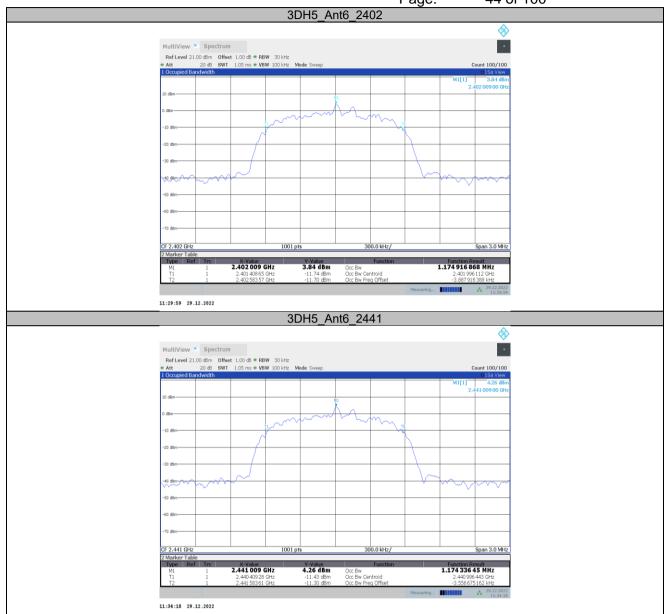
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# Maximum conducted output power For PY7-51629L(Lead) data:

**Test Result Peak** 

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict	
		2402	8.98	≤20.97	PASS	
DH5	Ant6	2441	9.47	≤20.97	PASS	
		2480	9.46	≤20.97	PASS	
		2402	9.32	≤20.97	PASS	
2DH5	Ant6	2441	9.43	≤20.97	PASS	
		2480	9.61	≤20.97		
		2402	9.36	≤20.97	PASS	
3DH5	Ant6	2441	9.32	≤20.97	PASS	
		2480	9.48	≤20.97	PASS	

#### **Test Result Average**

Test Mode	Channel	Average power[dBm]
	CH00	8.51
DH5	CH39	8.75
	CH78	8.58
	CH00	6.80
2DH5	CH39	6.52
	CH78	6.63
	CH00	6.78
3DH5	CH39	6.54
	CH78	6.65

#### For PY7-38431P(this model) of the Spot check: **Test Result Peak**

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
3DH5	Ant6	2402	9.43	≤20.97	PASS

Test Result Average

Test	Antonno	Frequency[MHz]	Average newer[dPm]
Mode	Antenna	Frequency[MH2]	Average power[dBm]
DH5	Ant6	2402	8.12



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# **Carrier frequency separation Test Result**

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant6	Нор	0.986	≥0.627	PASS
2DH5	Ant6	Нор	1.012	≥0.853	PASS
3DH5	Ant6	Нор	1.030	≥0.860	PASS



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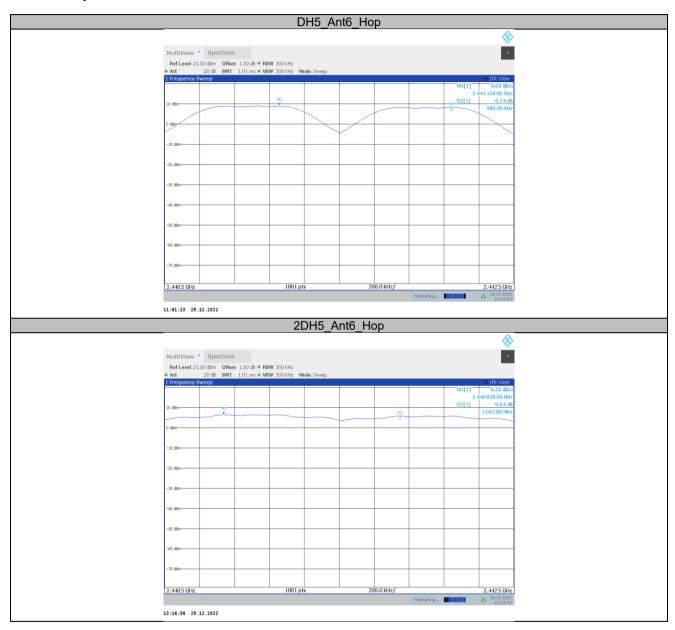


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#### **Test Graphs**





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#### Time of occupancy Test Result

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant6	Нор	0.37	320	0.118	≤0.4	PASS
DH3	Ant6	Нор	1.62	160	0.259	≤0.4	PASS
DH5	Ant6	Нор	2.87	106.67	0.306	≤0.4	PASS
2DH1	Ant6	Нор	0.37	320	0.118	≤0.4	PASS
2DH3	Ant6	Нор	1.63	160	0.261	≤0.4	PASS
2DH5	Ant6	Нор	2.87	106.67	0.306	≤0.4	PASS
3DH1	Ant6	Нор	0.37	320	0.118	≤0.4	PASS
3DH3	Ant6	Нор	1.62	160	0.259	≤0.4	PASS
3DH5	Ant6	Нор	2.87	106.67	0.306	≤0.4	PASS



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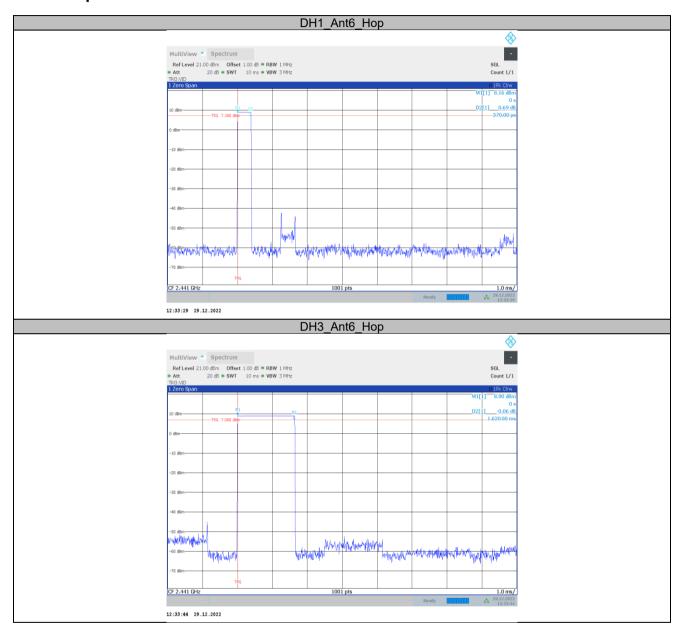


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#### **Test Graphs**





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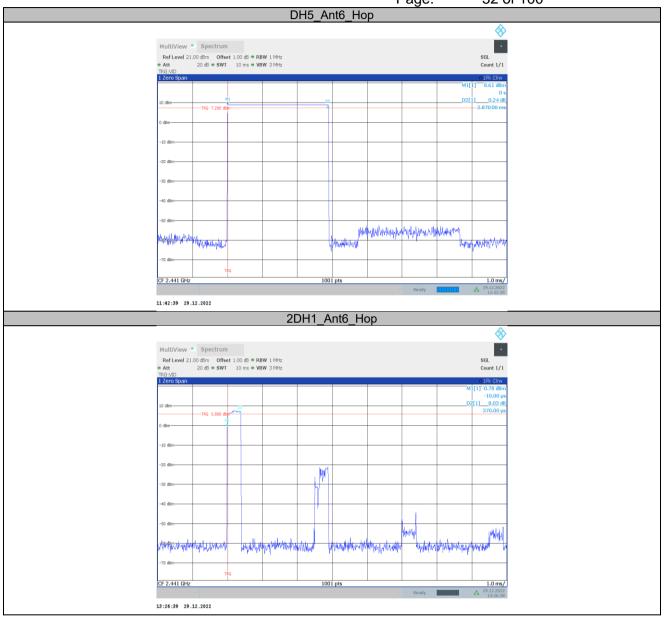
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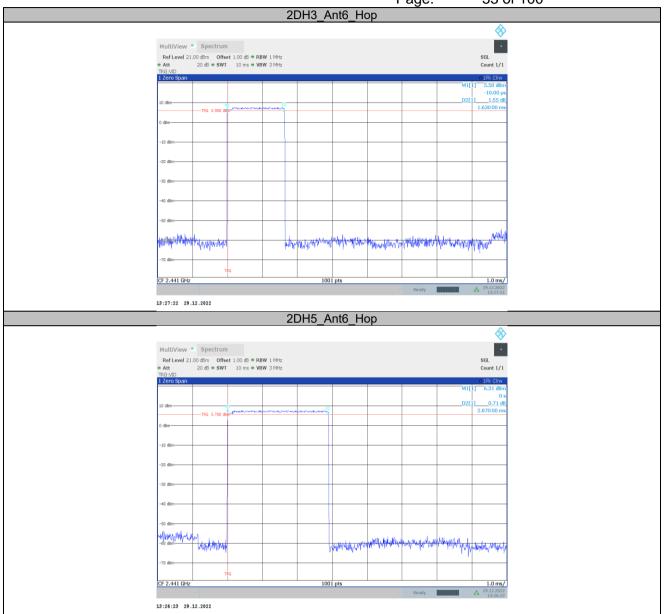
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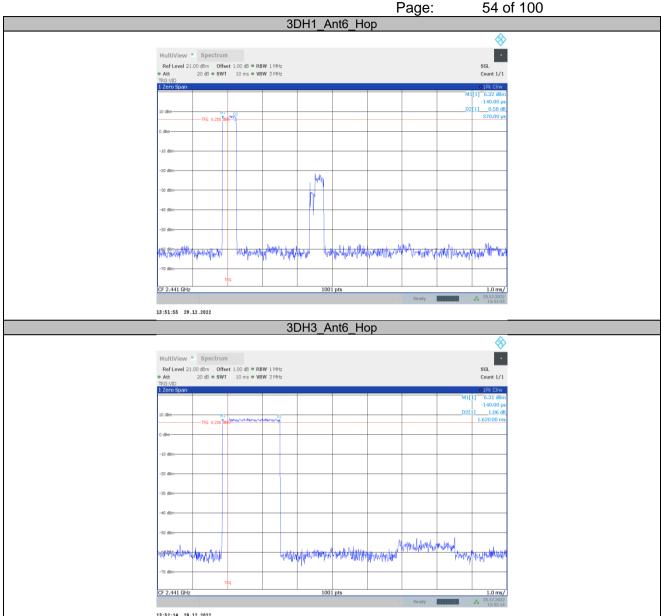
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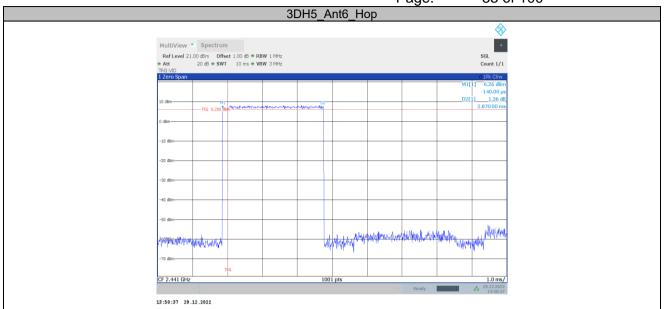
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#### Number of hopping channels Test Result

TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant6	Нор	79	≥15	PASS
2DH5	Ant6	Нор	79	≥15	PASS
3DH5	Ant6	Нор	79	≥15	PASS



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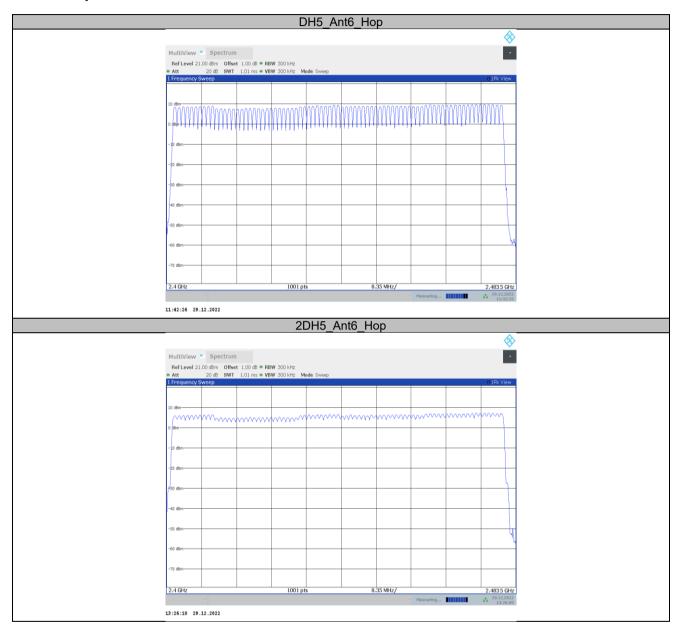


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#### **Test Graphs**





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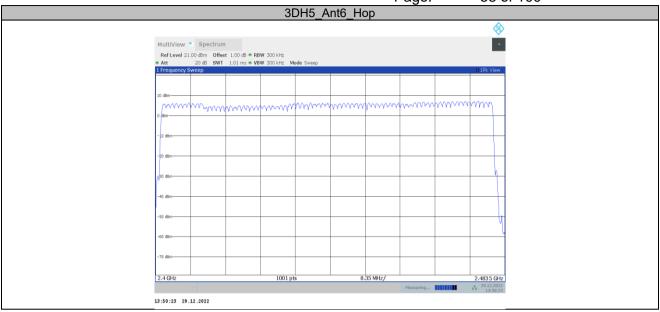
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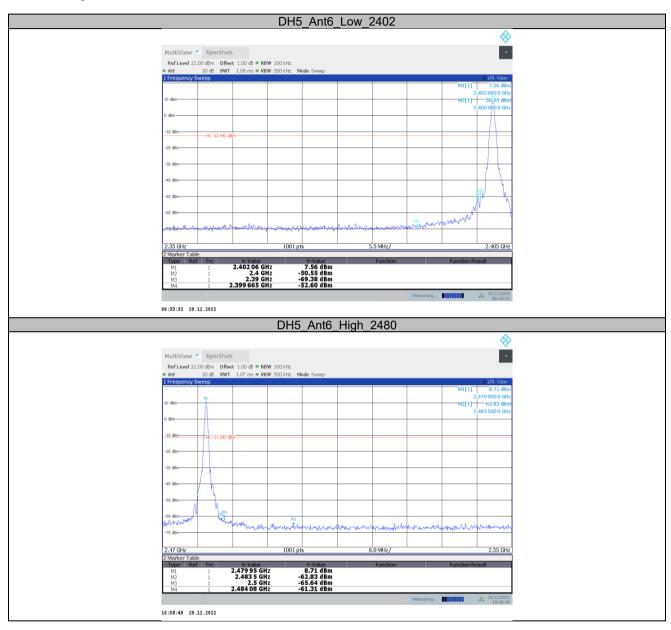


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#### Band edge measurements Test Graphs





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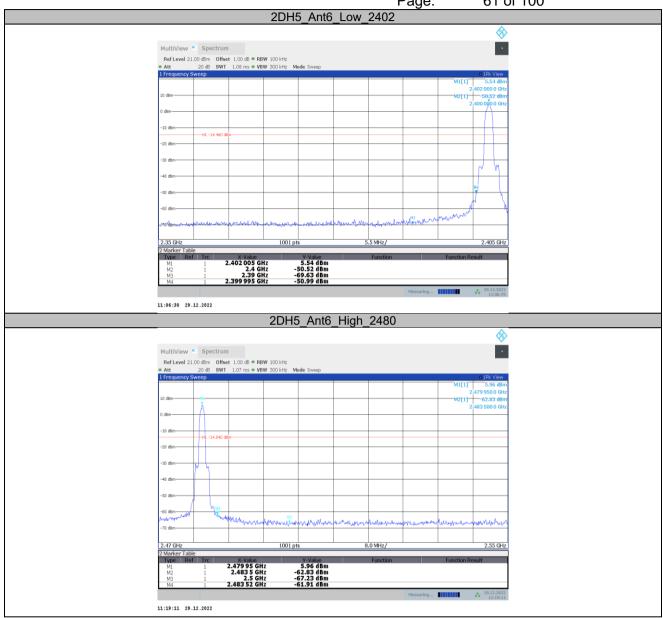
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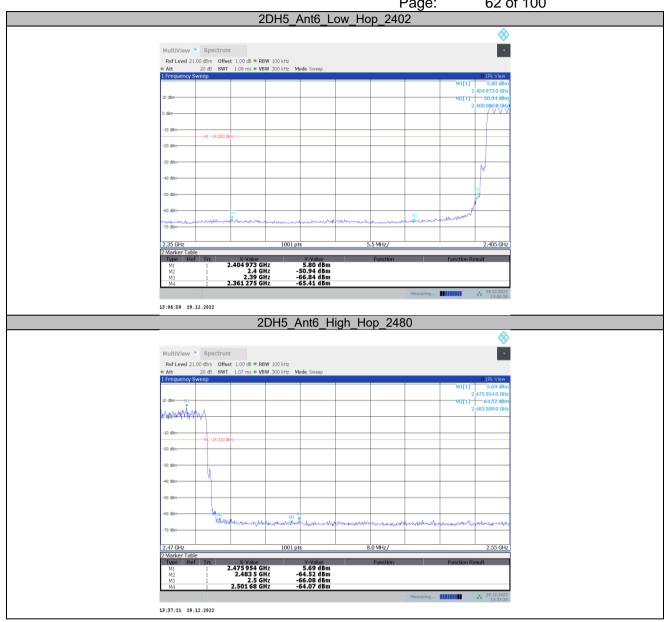
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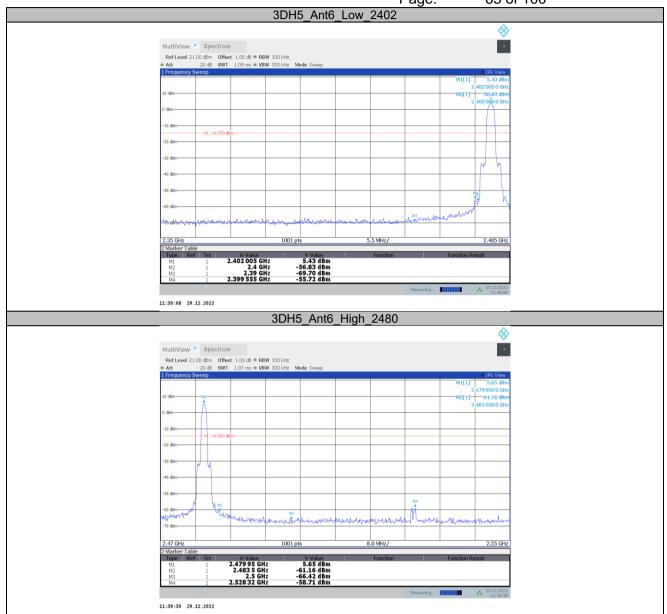
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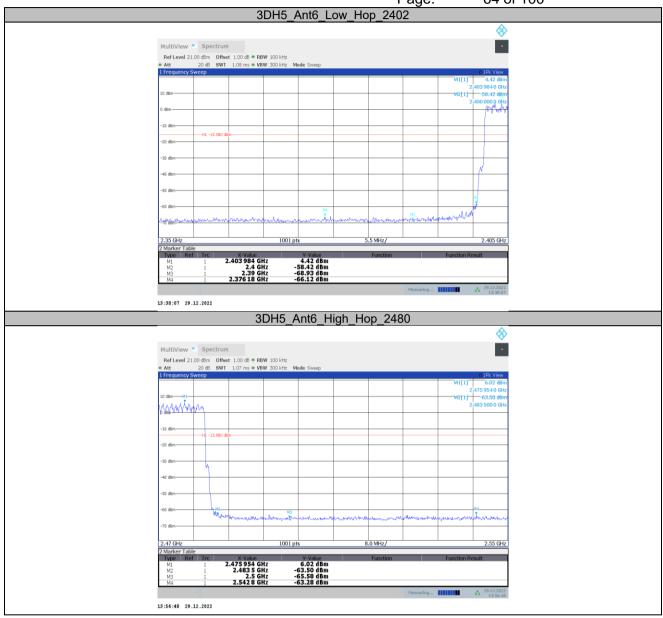
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# **Conducted Spurious Emission Test Graphs**





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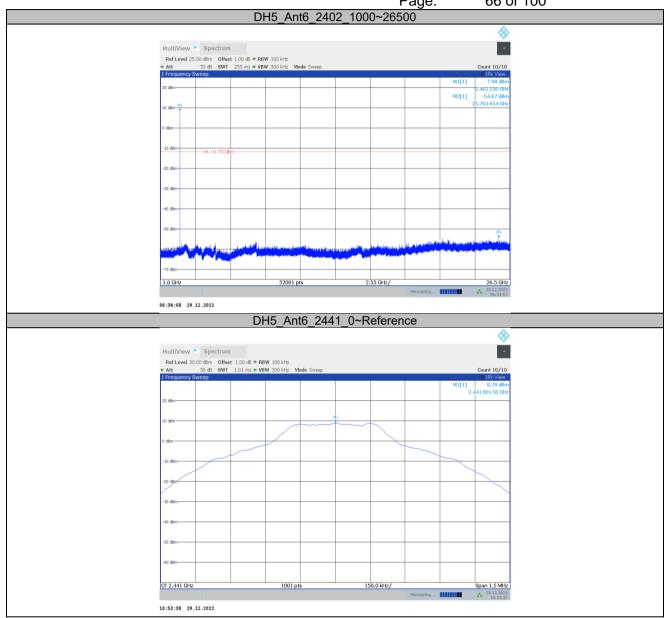
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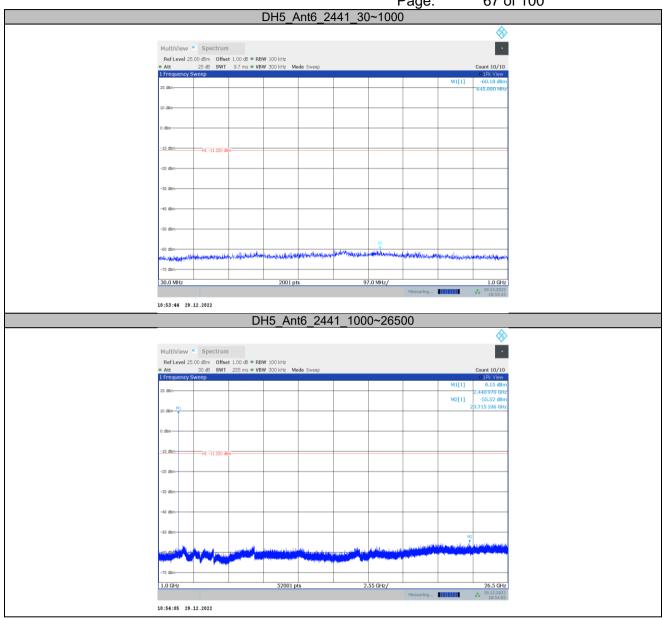
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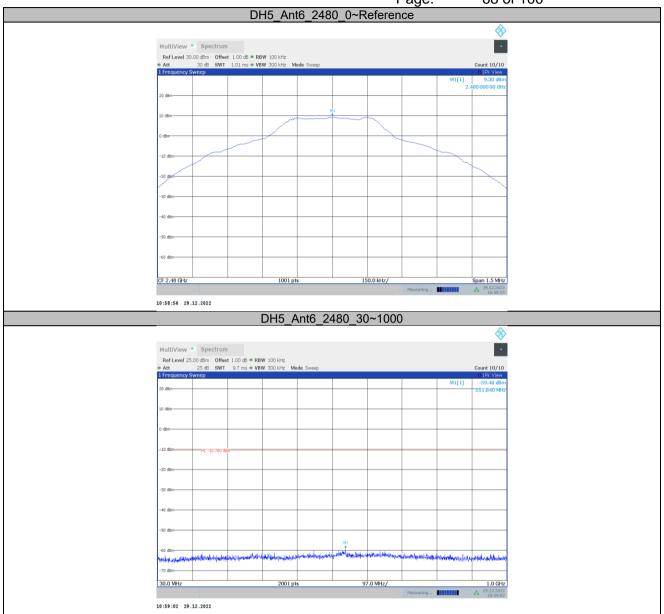
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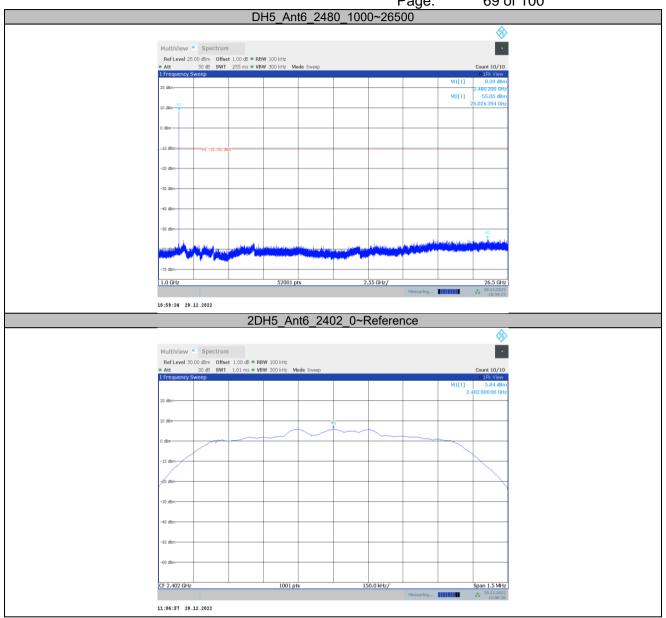
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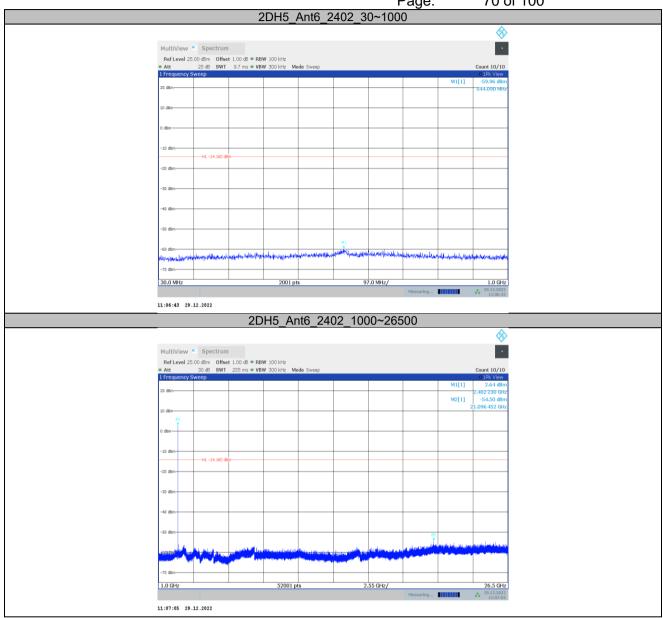
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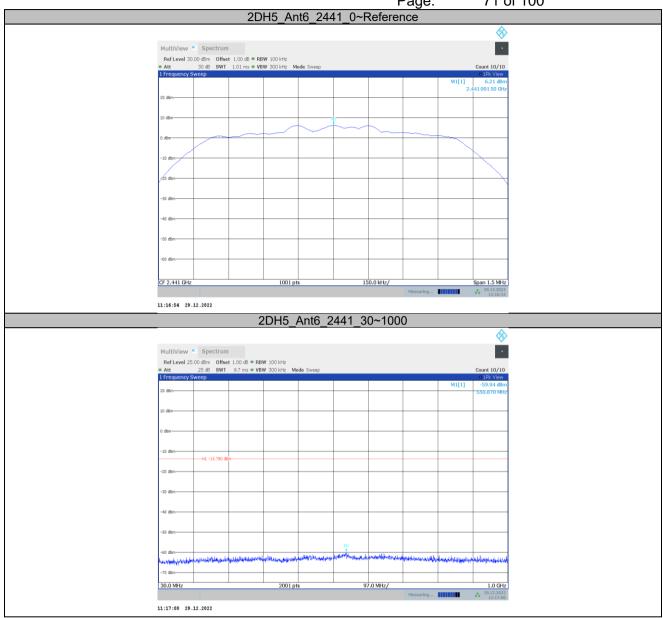
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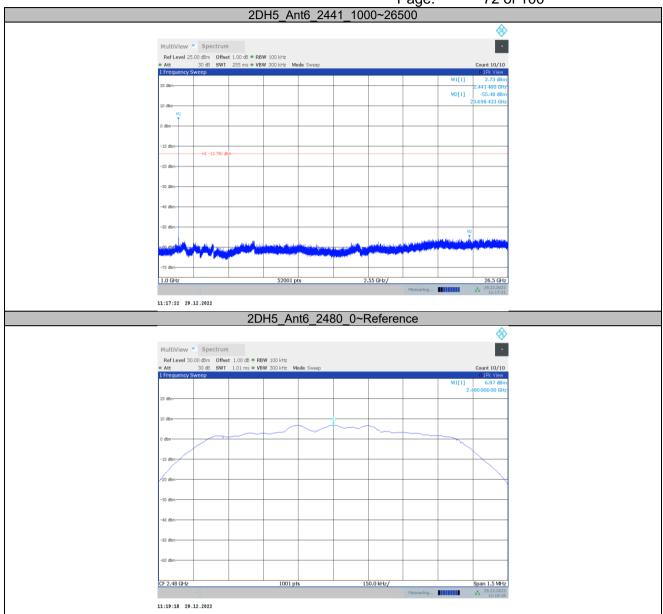
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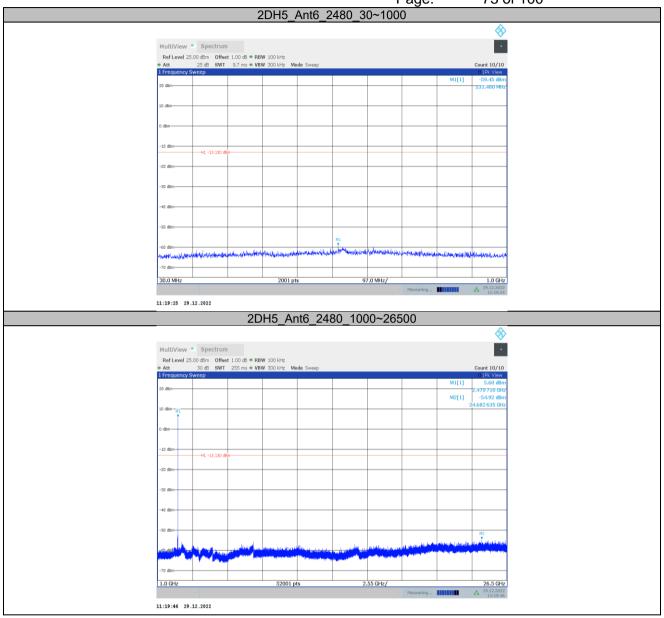
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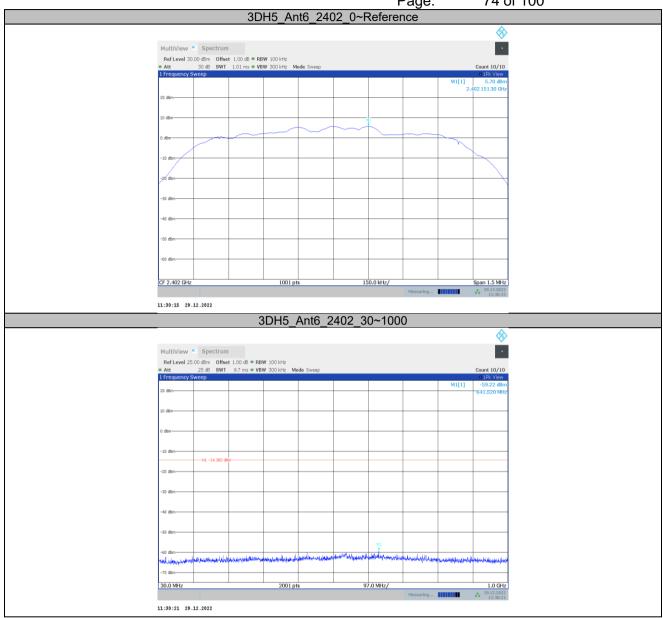
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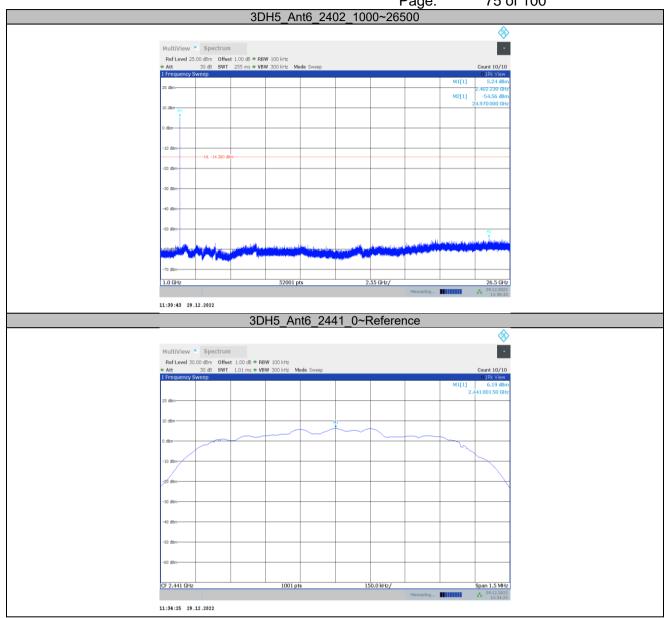
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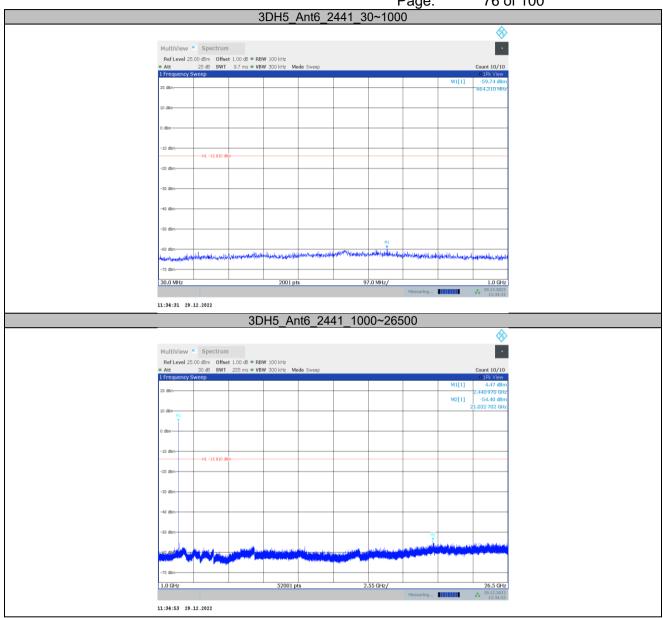
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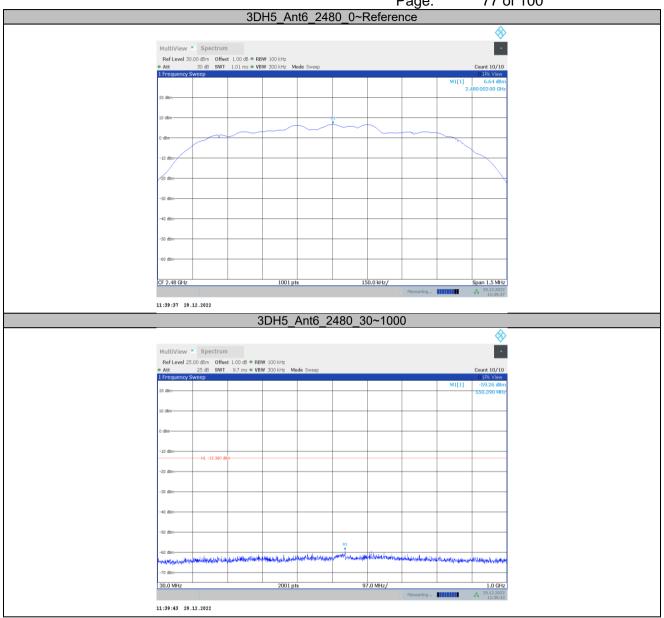
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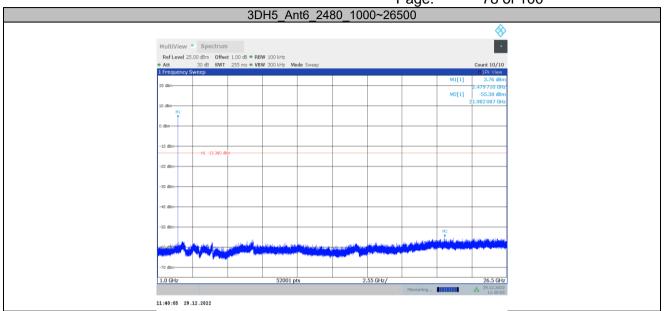
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#### **Duty Cycle** Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
		2402	2.89	3.76	76.86	1.14
DH5	Ant6	2441	2.89	3.76	76.86	1.14
		2480	2.89	3.76	76.86	1.14
		2402	2.89	3.76	76.86	1.14
2DH5	Ant6	2441	2.89	3.75	77.07	1.13
		2480	2.89	3.75	77.07	1.13
		2402	2.89	3.75	77.07	1.13
3DH5	Ant6	2441	2.89	3.75	77.07	1.13
		2480	2.89	3.75	77.07	1.13

#### Note:

- 1. Duty cycle = on time / 100 ms = 2 \* 2.89 / 100 = 5.78%
- 2. Duty cycle Correction factor = 20\*log (Duty cycle) = -24.76dB



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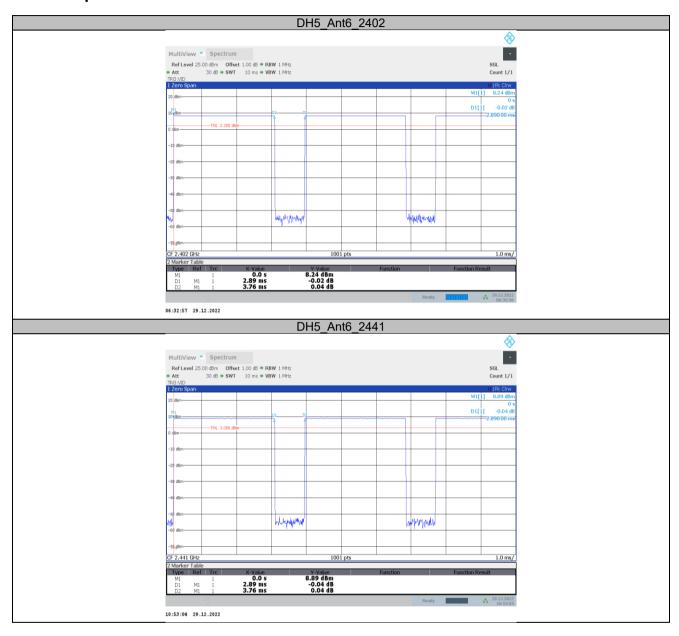


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#### **Test Graphs**





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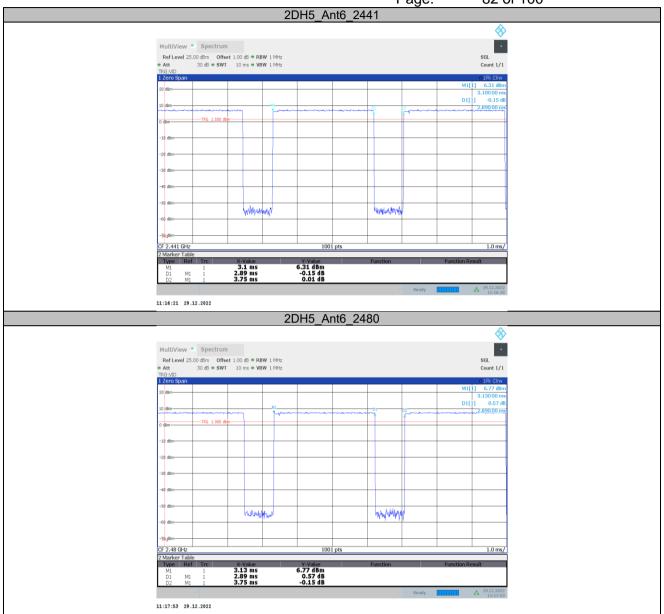
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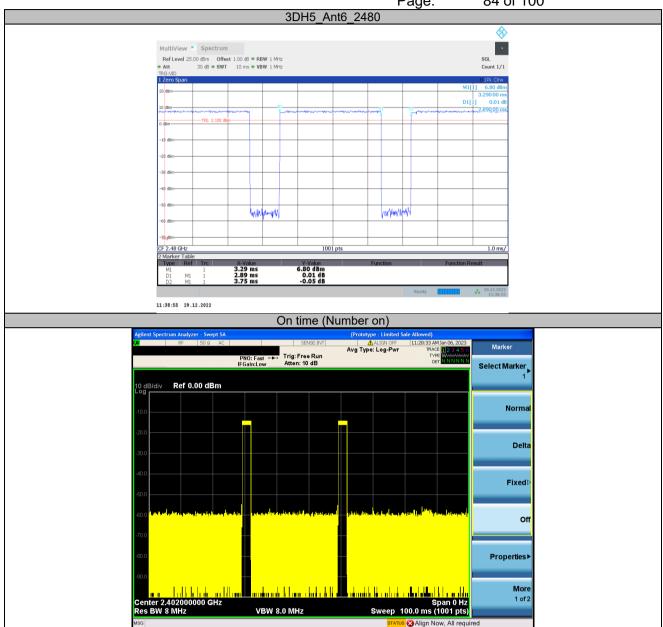
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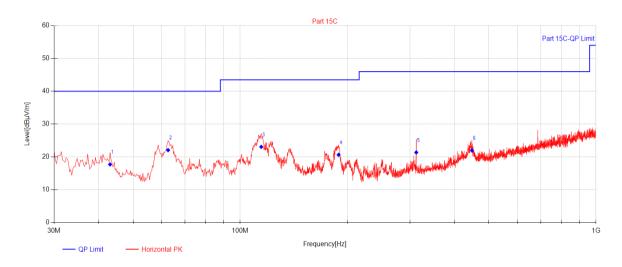
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# Radiated Spurious Emissions Radiated emission below 1GHz

For PY7-51629L(Lead) data:

Worst case Mode: GFSK\_Channel 00



Fina	l Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.095	40.12	-36.23	13.81	17.70	40.00	22.30	215	122	Horizontal
2	62.7375	46.26	-36.43	12.22	22.05	40.00	17.95	145	276	Horizontal
3	114.6325	47.56	-36.15	11.64	23.05	43.50	20.45	196	113	Horizontal
4	189.08	43.52	-35.40	12.51	20.63	43.50	22.87	254	256	Horizontal
5	312.5125	42.58	-34.29	13.06	21.35	46.00	24.65	133	236	Horizontal
6	448.3125	39.11	-33.11	15.93	21.93	46.00	24.07	287	133	Horizontal



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#### **GFSK\_Channel 00 WORSE**



Fina	Final Data List												
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	37.275	47.16	-36.39	13.70	24.47	40.00	15.53	245	334	Vertical			
2	58.615	50.23	-36.36	12.86	26.73	40.00	13.27	165	357	Vertical			
3	76.56	47.59	-35.94	9.82	21.47	40.00	18.53	125	10	Vertical			
4	114.6325	53.20	-36.15	11.64	28.69	43.50	14.81	184	115	Vertical			
5	190.2925	41.22	-35.41	12.22	18.03	43.50	25.47	175	167	Vertical			
6	445.8875	38.89	-33.20	15.87	21.55	46.00	24.45	169	271	Vertical			

#### Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:

Value = Reading( $dB\mu V$ ) + AF(dB/m) + Factor(dB):

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier gain(dB)

Margin = Limit( $dB\mu V/m$ ) – Value( $dB\mu V/m$ )

2) All channels have been tested, but only the worst case data displayed in this report.



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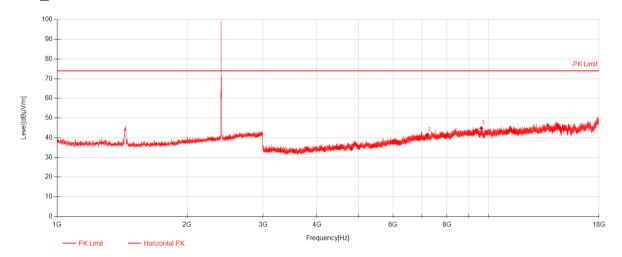
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#### **Transmitter emission Above 1GHz**

For PY7-51629L(Lead) data: GFSK Channel 00



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4804.0000	47.51	32.33	-45.54	34.30	74.00	39.70	241	124	Horizontal			
2	4804.0000	-	-	ı	9.54	54.00	44.46	ı	ı	Horizontal			
3	7206.0000	48.29	36.60	-43.44	41.45	74.00	32.55	136	1	Horizontal			
4	7206.0000	-	-	1	16.69	54.00	37.31	ı	ı	Horizontal			
5	9608.0000	46.00	38.43	-39.65	44.78	74.00	29.22	288	105	Horizontal			
6	9608.0000	-	-	-	20.02	54.00	33.98	-	-	Horizontal			



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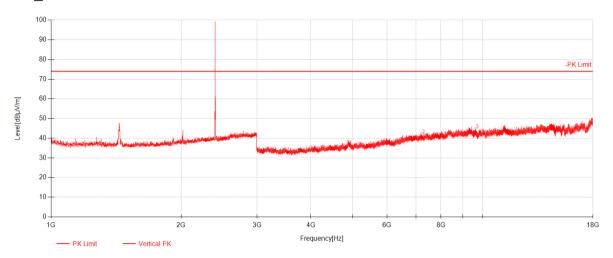


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#### **GFSK\_Channel 00**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	4804.0000	48.38	32.33	-45.54	35.17	74.00	38.83	248	1	Vertical		
2	4804.0000	-	-	-	10.41	54.00	43.59	-	-	Vertical		
3	7206.0000	47.26	36.60	-43.44	40.42	74.00	33.58	159	196	Vertical		
4	7206.0000	-	-	-	15.66	54.00	38.34	ı	-	Vertical		
5	9608.0000	44.25	38.43	-39.65	43.03	74.00	30.97	168	341	Vertical		
6	9608.0000	-	-	-	18.27	54.00	35.73	-	-	Vertical		



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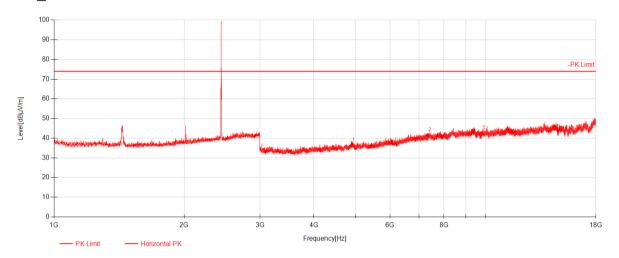


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#### **GFSK\_Channel 39**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4882.0000	49.19	32.55	-45.53	36.21	74.00	37.79	248	87	Horizontal			
2	4882.0000	-	-	-	11.45	54.00	42.55	-	-	Horizontal			
3	7323.0000	48.56	36.53	-43.67	41.42	74.00	32.58	156	1	Horizontal			
4	7323.0000	-	-	-	16.66	54.00	37.34	-	-	Horizontal			
5	9764.0000	43.68	38.26	-39.47	42.47	74.00	31.53	133	108	Horizontal			
6	9764.0000	-	-	-	17.71	54.00	36.29	-	-	Horizontal			



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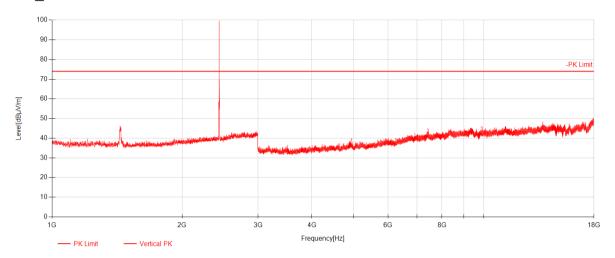


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#### **GFSK\_Channel 39**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4882.0000	48.76	32.55	-45.53	35.78	74.00	38.22	154	0	Vertical			
2	4882.0000	-	-	-	11.02	54.00	42.98	-	-	Vertical			
3	7323.0000	47.90	36.53	-43.67	40.76	74.00	33.24	159	35	Vertical			
4	7323.0000	-	-	-	16.00	54.00	38.00	-	-	Vertical			
5	9764.0000	43.16	38.26	-39.47	41.95	74.00	32.05	169	160	Vertical			
6	9764.0000	-	-	-	17.19	54.00	36.81	-	-	Vertical			



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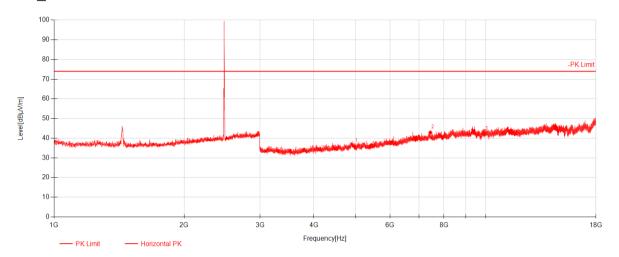


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#### **GFSK\_Channel 78**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4960.0000	48.65	32.77	-45.60	35.82	74.00	38.18	245	356	Horizontal			
2	4960.0000	-	-	-	11.06	54.00	42.94	-	-	Horizontal			
3	7440.0000	49.73	36.47	-43.30	42.90	74.00	31.10	126	50	Horizontal			
4	7440.0000	-	-	-	18.14	54.00	35.86	-	-	Horizontal			
5	9920.0000	43.10	38.38	-39.31	42.17	74.00	31.83	218	53	Horizontal			
6	9920.0000	-	-	-	17.41	54.00	36.59	-	-	Horizontal			



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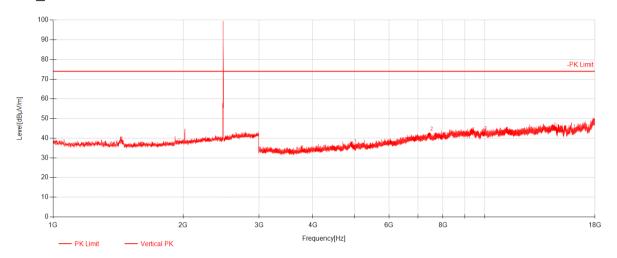


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#### **GFSK\_Channel 78**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4960.0000	48.37	32.77	-45.60	35.54	74.00	38.46	187	268	Vertical			
2	4960.0000	-	-	-	10.78	54.00	43.22	-	-	Vertical			
3	7440.0000	48.70	36.47	-43.30	41.87	74.00	32.13	196	356	Vertical			
4	7440.0000	-	-	-	17.11	54.00	36.89	-	-	Vertical			
5	9920.0000	43.08	38.38	-39.31	42.15	74.00	31.85	255	0	Vertical			
6	9920.0000	-	-	-	17.39	54.00	36.61	-	-	Vertical			



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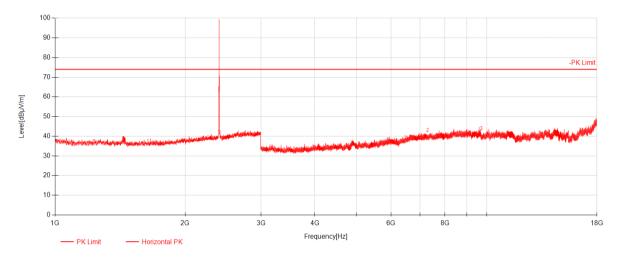
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#### Test for spot check:

For PY7-38431P(this model)data:

#### **Transmitter emission Above 1GHz**

#### **GFSK Channel 00**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	4804.0000	46.97	32.33	-45.54	33.76	74.00	40.24	248	330	Horizontal			
2	4804.0000	ı	ı	ı	9.00	54.00	45.00	ı	ı	Horizontal			
3	7206.0000	46.97	36.60	-43.44	40.13	74.00	33.87	159	183	Horizontal			
4	7206.0000	ı	ı	ı	15.37	54.00	38.63	ı	ı	Horizontal			
5	9608.0000	42.26	38.43	-39.65	41.04	74.00	32.96	175	128	Horizontal			
6	9608.0000	-	-	-	16.28	54.00	37.72	•	-	Horizontal			



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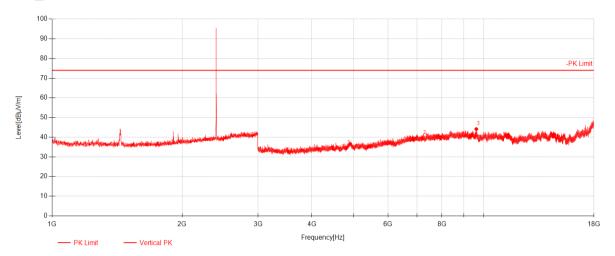


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#### **GFSK\_Channel 00**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	4804.0000	47.79	32.33	-45.54	34.58	74.00	39.42	245	90	Vertical		
2	4804.0000	-	ı	-	9.82	54.00	44.18	-	ı	Vertical		
3	7206.0000	46.25	36.60	-43.44	39.41	74.00	34.59	126	109	Vertical		
4	7206.0000	-	ı	-	14.65	54.00	39.35	-	ı	Vertical		
5	9608.0000	45.33	38.43	-39.65	44.11	74.00	29.89	177	54	Vertical		
6	9608.0000	-	-	-	19.35	54.00	34.65	-	-	Vertical		

#### Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:

Level = Reading( $dB\mu V$ ) + AF(dB/m) + Factor(dB):

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier gain(dB)

Margin = Limit( $dB\mu V/m$ ) – Level( $dB\mu V/m$ )

2) All channels have been tested, but only the worst case data displayed in this report.



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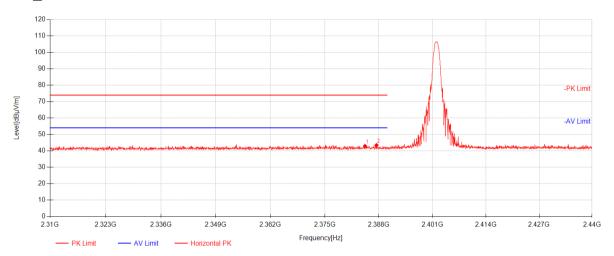
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#### Restricted bands around fundamental frequency

For PY7-51629L(Lead) data:

#### **GFSK Channel 00**



Data	Data List												
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2384.6633	39.08	27.43	-23.57	42.94	74.00	31.06	233	185	Horizontal			
2	2384.6633	-	-	-	18.18	54.00	35.82	-	-	Horizontal			
3	2387.4367	39.60	27.43	-23.57	43.46	74.00	30.54	233	185	Horizontal			
4	2387.4367	ı			18.70	54.00	35.30	-		Horizontal			



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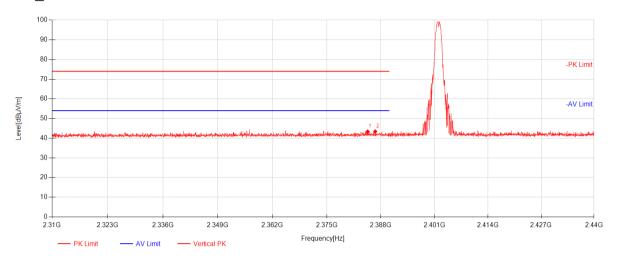


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#### **GFSK\_Channel 00**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2384.8367	39.50	27.43	-23.57	43.36	74.00	30.64	278	66	Vertical		
2	2384.8367	-	-	-	18.60	54.00	35.40	-	-	Vertical		
3	2386.6567	39.54	27.43	-23.57	43.40	74.00	30.60	278	66	Vertical		
4	2386.6567	-	-	-	18.64	54.00	35.36	-	-	Vertical		



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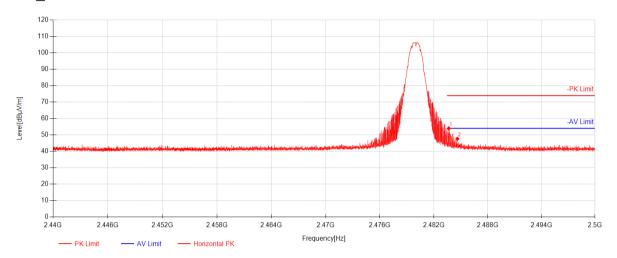


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#### **GFSK\_Channel 78**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2483.665	49.80	27.72	-23.54	53.97	74.00	20.03	165	206	Horizontal		
2	2483.665	-	-	-	29.21	54.00	24.79	-	-	Horizontal		
3	2484.6175	43.47	27.72	-23.54	47.64	74.00	26.36	165	206	Horizontal		
4	2484.6175	-	-	-	22.88	54.00	31.12	-	-	Horizontal		



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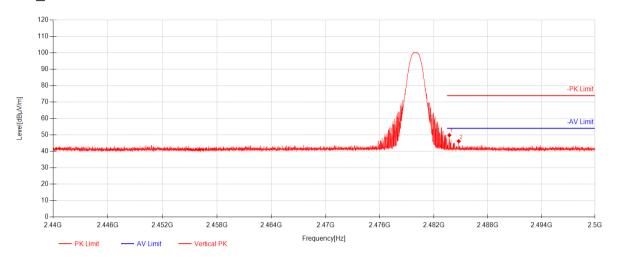


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#### **GFSK\_Channel 78**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2483.7325	45.67	27.72	-23.54	49.84	74.00	24.16	155	257	Vertical		
2	2483.7325	-	-	-	25.08	54.00	28.92	-	-	Vertical		
3	2484.775	41.98	27.72	-23.54	46.16	74.00	27.84	155	257	Vertical		
4	2484.775	-	-	-	21.40	54.00	32.60	-	-	Vertical		



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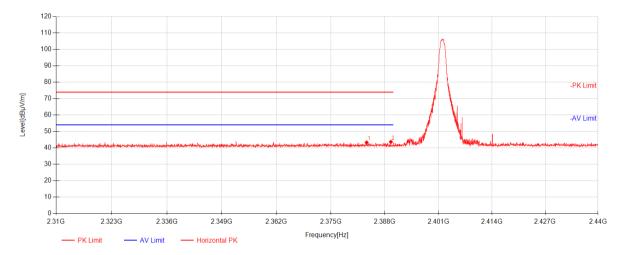
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#### Test for spot check:

For PY7-38431P(this model)data:

#### Restricted bands around fundamental frequency

#### **GFSK\_Channel 00**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2383.6233	39.39	27.43	-23.57	43.25	74.00	30.75	236	144	Horizontal		
2	2383.6233	-	-	-	18.49	54.00	35.51	-	-	Horizontal		
3	2389.4733	39.76	27.43	-23.57	43.62	74.00	30.38	236	144	Horizontal		
4	2389.4733	-	-	-	18.86	54.00	35.14	-	-	Horizontal		



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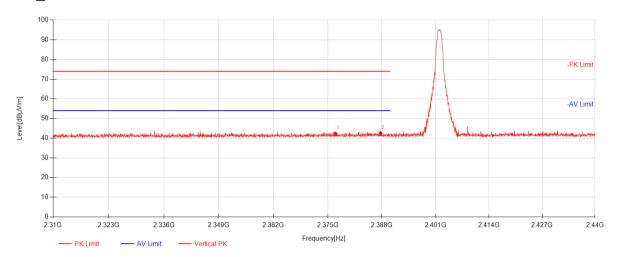


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#### **GFSK\_Channel 00**



Data	Data List											
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2376.8633	38.46	27.43	-23.57	42.32	74.00	31.68	188	265	Vertical		
2	2376.8633	-	-	-	17.56	54.00	36.44	-	-	Vertical		
3	2387.6967	38.73	27.43	-23.57	42.59	74.00	31.41	188	265	Vertical		
4	2387.6967	-	-	-	17.83	54.00	36.17	-	-	Vertical		

#### Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:

Level = Reading( $dB\mu V$ ) + AF(dB/m) + Factor(dB):

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier gain(dB)

Margin = Limit( $dB\mu V/m$ ) – Level( $dB\mu V/m$ )

---End of Report---



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