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TEST REPORT

Application No.:	SZEM2103003089AT
Applicant:	SKULLCANDY, INC.
Address of Applicant:	6301 N Landmark Dr Park City UT 84098, Utah United States of America
Manufacturer:	SKULLCANDY, INC.
Address of Manufacturer:	6301 N Landmark Dr Park City UT 84098, Utah United States of America
Equipment Under Test (EUT):
EUT Name:	Grind/GrindXT
Model No.:	S2GTW
Trade Mark:	Skullcandy
FCC ID:	Y22-S2GTW
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2021-03-29
Date of Test:	2021-04-14 to 2021-04-29
Date of Issue:	2021-04-30
Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards specified above.

Keny. Ku

Keny Xu EMC Laboratory Manager



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	Revision Record						
Version	Chapter	Date	Modifier	Remark			
01		2021-04-30		Original			

Authorized for issue by:			
	Bonson Wang		
	Benson Wang/Project Engineer	-	
	Eric Fu		
	Eric Fu/Reviewer	-	



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2 Test Summary

Radio Spectrum Technical Requirement					
Item	Standard	Method	Requirement	Result	
Antenna Requirement		N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Customer Declaration	
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)	Customer Declaration	

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
Conducted Peak Output Power		ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(1)	Pass	
20dB Bandwidth		ANSI C63.10 (2013) Section 7.8.7	47 CFR Part 15, Subpart C 15.247(a)(1)	Pass	
Carrier Frequencies Separation		ANSI C63.10 (2013) Section 7.8.2	47 CFR Part 15, Subpart C 15.247a(1)	Pass	
Hopping Channel Number		ANSI C63.10 (2013) Section 7.8.3	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass	
Dwell Time		ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass	
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6	47 CFR Part 15, Subpart C 15.247(d)	Pass	
Conducted Spurious Emissions		ANSI C63.10 (2013) Section 7.8.8	47 CFR Part 15, Subpart C 15.247(d)	Pass	
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass	
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass	
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass	

Emission Part						
Item	Standard	Method	Requirement	Result		
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass		



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4 General Information

4.1 Details of E.U.T.

Power supply:	Left earbuds: Li-Ion Polymer Battery 3.7V 55mAh (Charge by travel case)
	Right earbuds: Li-Ion Polymer Battery 3.7V 55mAh (Charge by travel case)
	travel case with backup battery: Li-Ion Polymer Battery 3.7V 650mAh (Charged by micro-usb port)
Cable(s):	Type-C cable: 13cm unshielded
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.2 Dual mode
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	FPC Antenna
Antenna Gain:	left earbuds: 1.05dBi; Right earbuds: 0.87dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	SAMSUNG	EP-TA200	REF. No.SEA05K03A

4.3 Measurement Uncertainty

, , , , , , , , , , , , , , , , , , ,	
Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.0dB (150kHz to 30MHz)
Conducted Peak Output Power	± 0.75dB
20dB Bandwidth	± 3%
Carrier Frequencies Separation	± 7.25 x 10-8
Hopping Channel Number	± 7.25 x 10-8
Dwell Time	± 0.37%
Conducted Band Edges Measurement	± 0.75dB
Conducted Spurious Emissions	± 0.75dB
Radiated Emissions which fall in the restricted bands	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)
Radiated Spurious Emissions Below 1GHz	± 4.5dB
Radiated Spurious Emissions Above 1GHz	± 4.8dB
Deve est.	4

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR 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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4.4 Test Location

All tests were performed at: SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057. Tel: +86 755 2601 2053 Fax: +86 755 2671 0594 No tests were sub-contracted.

4.5 Test Facility

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

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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Equipment List 5

Conducted Emissions at AC Power Line (150kHz-30MHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2019-06-13	2022-06-12	
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2021-03-24	2022-03-23	
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-10	2021-07-09	
LISN	Rohde&Schwarz	ENV216	SEM007-01	2020-09-23	2021-09-22	
LISN	ETS-LINDGREN	3816/2	SEM007-02	2021-03-24	2022-03-25	

Conducted Peak Output Power								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12			
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22			
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07			
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09			
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07			

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07



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Carrier Frequencies Separation								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12			
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22			
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07			
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09			
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07			

Hopping Channel Number								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12			
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22			
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07			
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09			
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07			

Dwell Time					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07

Conducted Band Edges Measurement								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12			
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22			
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07			
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09			



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Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07
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Conducted Spurious Emissions								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12			
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22			
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07			
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM031-01	2020-07-10	2021-07-09			
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2021-04-08	2022-04-07			

Radiated Emissions which fall in the restricted bands									
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date				
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25				
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2021-02-01	2022-01-31				
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2024-04-13				
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22				
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A				
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09				
Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2020-11-14	2023-11-13				
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2021-03-24	2022-03-23				

Radiated Spurious Emissions Below 1GHz								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18			
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2020-11-02	2021-11-01			
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23			
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2021-03-24	2022-03-23			
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09			



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Radiated Spurious Emissions Above 1GHz								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25			
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2021-02-01	2022-01-31			
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2024-04-13			
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22			
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09			

General used equipment								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14			
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14			
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2021-03-30	2022-03-29			



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard 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.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna are left earbuds: 1.05dBi; Right earbuds: 0.87dBi

Antenna location: Refer to internal photo.



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6.2 Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence

6.2.1 Test Requirement:

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

6.2.2 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:

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 Bluetooth system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

Compliance for section 15.247(h):



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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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7 Radio Spectrum Matter Test Results

7.1 Conducted Peak Output Power

Test Requirement	47 CFR Part 15, Subpart C 15.247(b)(1)
Test Method:	ANSI C63.10 (2013) Section 7.8.5

Limit:	
Frequency range(MHz)	Output power of the intentional radiator(watt)
	1 for ≥50 hopping channels
902-928	0.25 for 25≤ hopping channels <50
	1 for digital modulation
2400-2483.5	1 for ≥75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.1.1 E.U.T. Operation

Operating Environment:

•p•						
Temperature:	23.4 °C	Humidity:	45.7 % RH	Atmospheric Pressure:	1010	mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.



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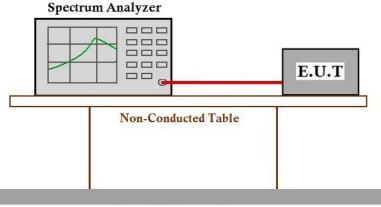
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7.1.3 Test Setup Diagram



Ground Reference Plane

7.1.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.2 20dB Bandwidth

Test Requirement	47 CFR Part 15, Subpart C 15.247(a)(1)
Test Method:	ANSI C63.10 (2013) Section 7.8.7

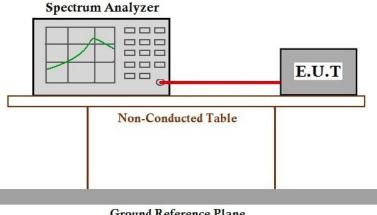
7.2.1 E.U.T. Operation

Operating Environment: Temperature: 23.4 °C Humidity: 45.7 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



Ground Reference Plane

7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.3 Carrier Frequencies Separation

Test Requirement	47 CFR Part 15, Subpart C 15.247a(1)
Test Method:	ANSI C63.10 (2013) Section 7.8.2
L imit:	

Limit:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

7.3.1 E.U.T. Operation

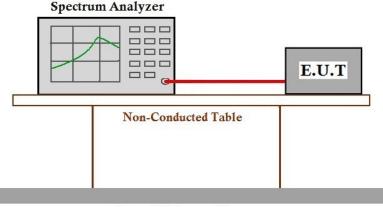
Operating Environment:

Temperature:	23.4 °C	Humidity:	45.7 % RH	Atmospheric Pressure:	1010	mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX_Hop mode(Left earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	07	TX_Hop mode(Right earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



Ground Reference Plane

7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.4 Hopping Channel Number

Test Requirement	47 CFR Part 15, Subpart C 15.247a(1)(iii)
Test Method:	ANSI C63.10 (2013) Section 7.8.3

Limit:

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

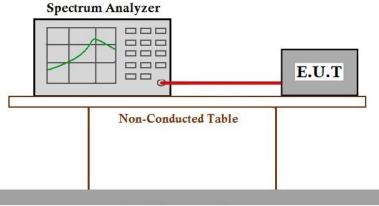
7.4.1 E.U.T. Operation

Operating Enviro	onment:				
Temperature:	23.4 °C	Humidity:	45.7 % RH	Atmospheric Pressure: 1010 mbai	r

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX_Hop mode(Left earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	07	TX_Hop mode(Right earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



Ground Reference Plane



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7.4.4 Measurement Procedure and Data

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7.5 Dwell Time

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)(iii) Test Method: ANSI C63.10 (2013) Section 7.8.4

Limit:

Frequency(MHz)	Limit
002.028	0.4S within a 20S period(20dB bandwidth<250kHz)
902-928	0.4S within a 10S period(20dB bandwidth≥250kHz)
2400 2402 5	0.4S within a period of 0.4S multiplied by the number
2400-2483.5	of hopping channels
5725-5850	0.4S within a 30S period

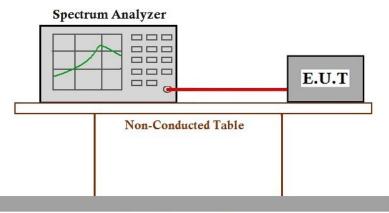
7.5.1 E.U.T. Operation

Operating Environment: Humidity: 45.7 % RH Temperature: 23.4 °C Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX_Hop mode(Left earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	07	TX_Hop mode(Right earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



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7.5.4 Measurement Procedure and Data

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7.6 Conducted Band Edges Measurement

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 7.8.6

Limit:

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. 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).

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 45.7 % RH

Atmospheric Pressure: 1010 mbar

Pre-scan / Final test	Mode Code	Description
Final test	03	TX_Hop mode(Left earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	07	TX_Hop mode(Right earbuds)_Keep the EUT in frequency hopping mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.6.2 Test Mode Description



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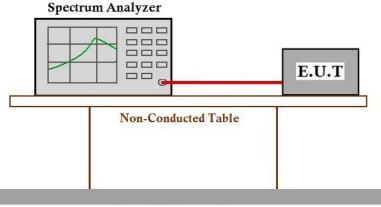
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7.6.3 Test Setup Diagram



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7.6.4 Measurement Procedure and Data

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7.7 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 7.8.8

Limit:

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. 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).

7.7.1 E.U.T. Operation

Operating Environment:

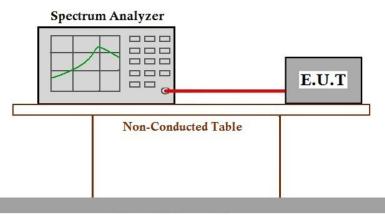
Temperature: 23.4 °C Humidity: 45.7 % RH

Atmospheric Pressure: 1010 mbar

Pre-scan / Final test	Mode Code	Description
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.7.2 Test Mode Description

7.7.3 Test Setup Diagram



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7.7.4 Measurement Procedure and Data

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7.8 Radiated Emissions which fall in the restricted bands

Test Requirement	47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method:	ANSI C63.10 (2013) Section 6.10.5
Measurement Distance:	3m

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
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.8.1 E.U.T. Operation

Operating Enviro	onment:					
Temperature:	21.3 °C	Humidity:	54.2 % RH	Atmospheric Pressure:	1010	mbar

Mode Pre-scan / Description **Final test** Code TX_non-Hop mode(Left earbuds) Keep the EUT in continuously transmitting mode Final test 04 with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. TX non-Hop mode(Left earbuds)+travel case Keep the EUT in continuously pi/4DQPSK modulation, 8DPSK transmitting mode with GFSK modulation, 05 Pre-scan modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report. TX non-Hop mode(Left earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK 06 Pre-scan modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report. TX non-Hop mode(Right earbuds) Keep the EUT in continuously transmitting mode Final test 80 with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.8.2 Test Mode Description



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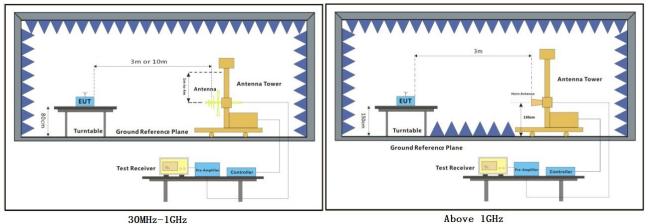


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Pre-scan	09	TX_non-Hop mode(Right earbuds)+travel case_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	10	TX_non-Hop mode(Right earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram





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7.8.4 Measurement Procedure and Data

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 re-tested 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: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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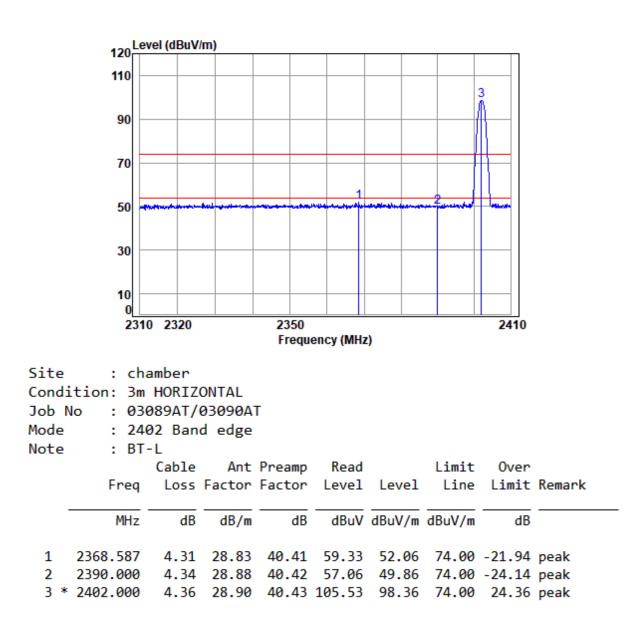
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:Low





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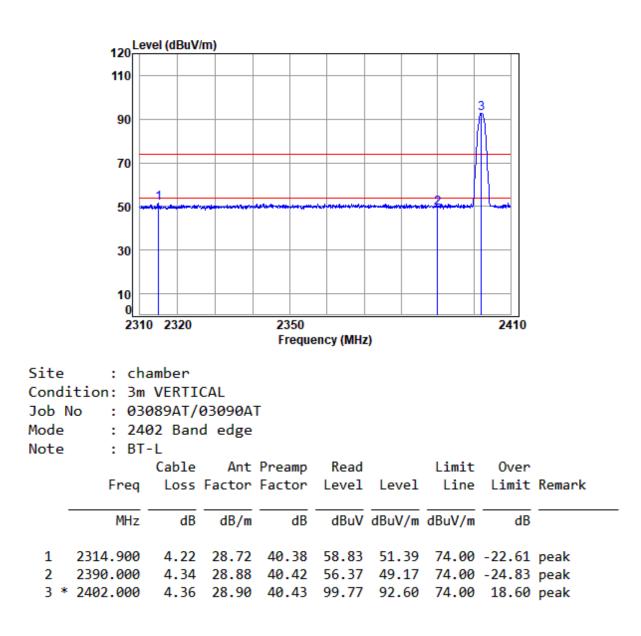
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Test Mode: 04; Polarity: Vertical; Modulation:GFSK; Channel:Low





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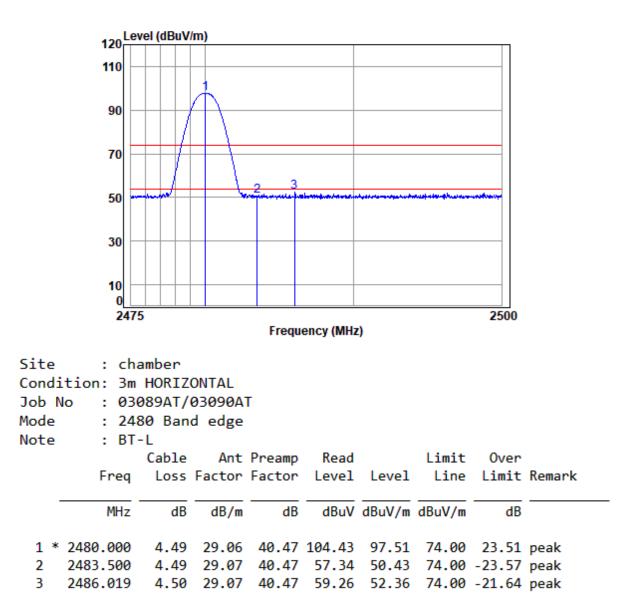
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:High





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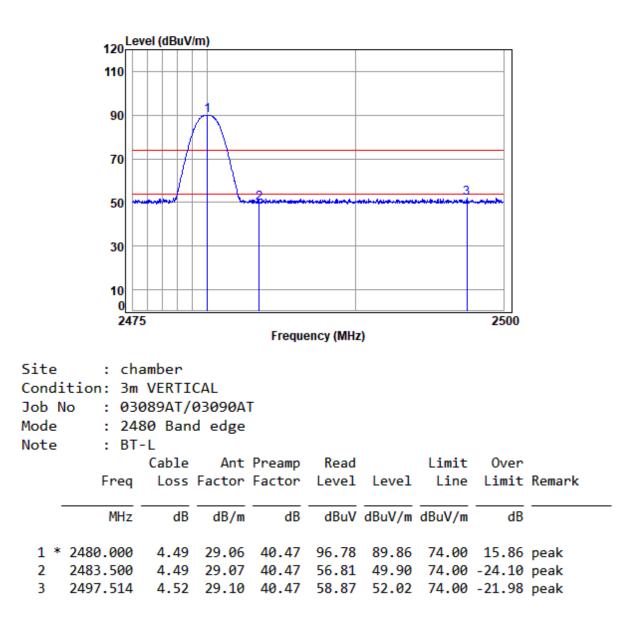
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Test Mode: 04; Polarity: Vertical; Modulation:GFSK; Channel:High





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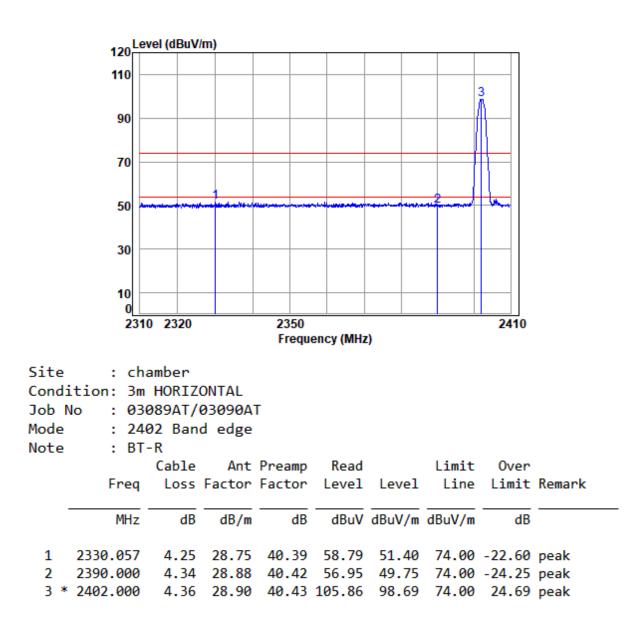
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:Low





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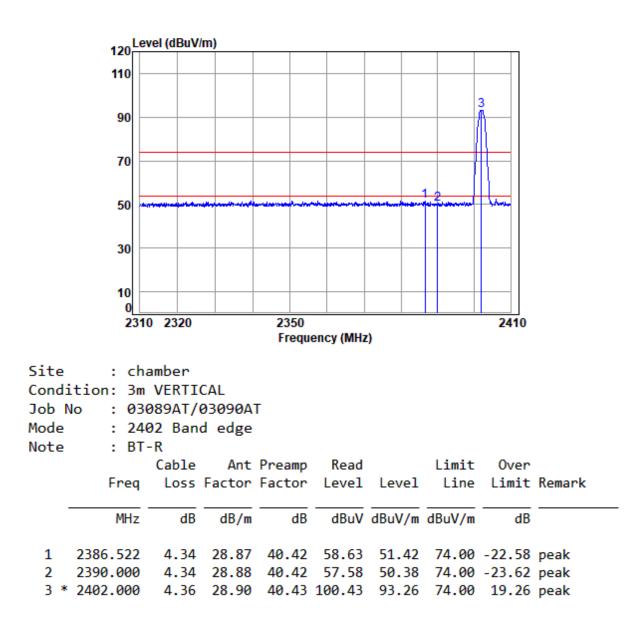
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:Low





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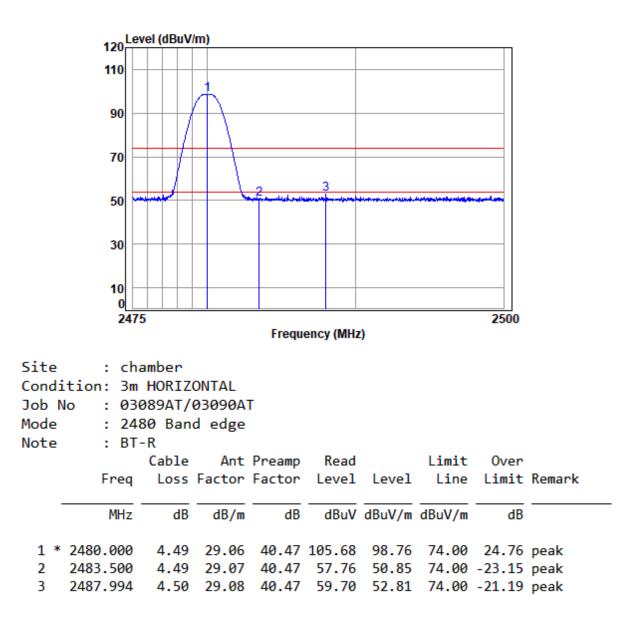
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:High





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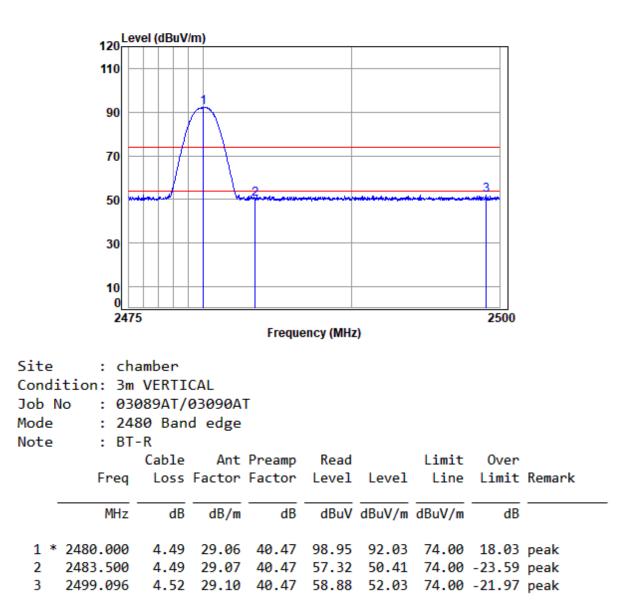
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:High





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7.9 Radiated Spurious Emissions Below 1GHz

Test Requirement	47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method:	ANSI C63.10 (2013) Section 6.4,6.5
Measurement Distance:	3m

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
88-216	150	3
216-960	200	3
960-1000	500	3

7.9.1 E.U.T. Operation

Operating Environment: Temperature: 24.2 °C Humidity: 62.9 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	05	TX_non-Hop mode(Left earbuds)+travel case_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	06	TX_non-Hop mode(Left earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	09	TX_non-Hop mode(Right earbuds)+travel case_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	10	TX_non-Hop mode(Right earbuds)+travel case+adapter_Keep the EUT in



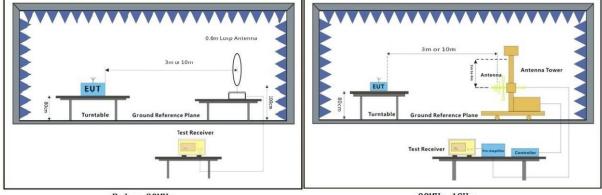


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continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



Below 30MHz

30MHz-1GHz



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7.9.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. 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.

c. 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.

d. 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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 re-tested one by one using quasi-peak method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 9kHz to 30MHz, the disturbance 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.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



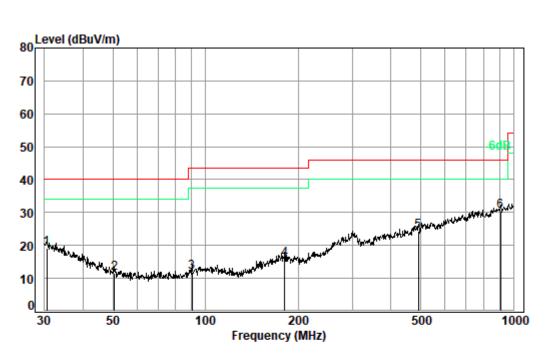
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:Low

Condition: 3m HORIZONTAL Job No. : 03089AT Test mode: 04

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	30.53	0.61	22.59	27.73	23.84	19.31	40.00	-20.69	QP
2	50.59	0.71	13.92	27.68	24.58	11.53	40.00	-28.47	QP
3	90.54	1.29	13.21	27.62	25.12	12.00	43.50	-31.50	QP
4	180.65	1.19	15.41	27.21	26.49	15.88	43.50	-27.62	QP
5	490.74	2.48	24.28	27.76	25.38	24.38	46.00	-21.62	QP
6 pp	909.67	3.51	29.05	27.11	24.93	30.38	46.00	-15.62	QP
									-



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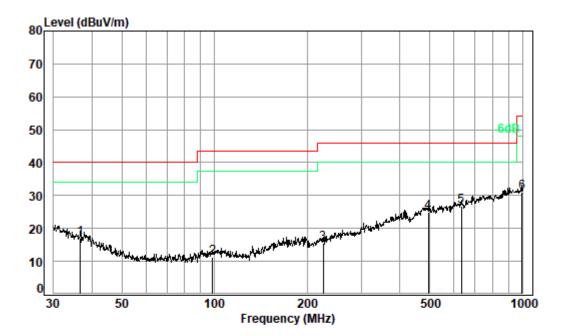
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Condition: 3m VERTICAL Job No. : 03089AT Test mode: 04

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-									
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	36.64	0.67	19.54	27.71	24.58	17.08	40.00	-22.92	QP
2	98.49	1.13	13.85	27.61	23.99	11.36	43.50	-32.14	QP
3	225.31	1.44	17.07	27.06	24.03	15.48	46.00	-30.52	QP
4	495.93	2.49	24.18	27.78	26.15	25.04	46.00	-20.96	QP
5 pp	633.91	2.77	26.38	28.05	25.53	26.63	46.00	-19.37	QP
6	996.50	3.60	29.75	26.68	24.36	31.03	54.00	-22.97	QP



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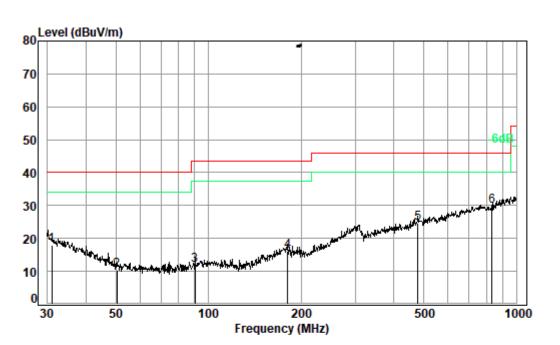
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:Low

Condition: 3m HORIZONTAL Job No. : 03089AT Test mode: 08

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-									
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	30.96	0.61	22.27	27.73	22.91	18.06	40.00	-21.94	QP
2	50.41	0.70	13.98	27.68	23.41	10.41	40.00	-29.59	QP
3	90.54	1.29	13.21	27.62	25.09	11.97	43.50	-31.53	QP
4	180.65	1.19	15.41	27.21	26.85	16.24	43.50	-27.26	QP
5	478.85	2.46	24.22	27.72	25.78	24.74	46.00	-21.26	QP
6 pp	833.32	3.37	27.80	27.53	26.26	29.90	46.00	-16.10	QP



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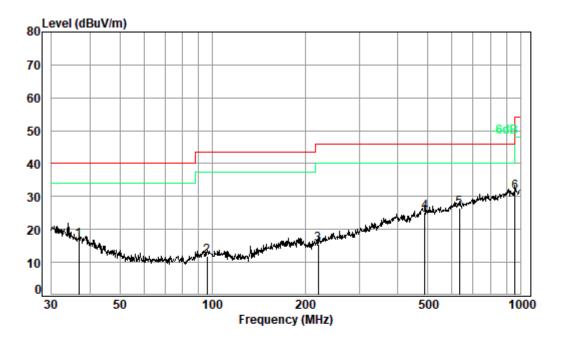
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:Low

Condition: 3m VERTICAL Job No. : 03089AT Test mode: 08

	Freq			Preamp Factor					Remark
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	36.90	0.67	19.47	27.71	24.19	16.62	40.00	-23.38	QP
2	96.10	1.18	13.80	27.61	24.40	11.77	43.50	-31.73	QP
3	220.62	1.39	16.83	27.08	24.36	15.50	46.00	-30.50	QP
4	489.03	2.48	24.30	27.76	26.30	25.32	46.00	-20.68	QP
5 pp	633.91	2.77	26.38	28.05	25.48	26.58	46.00	-19.42	QP
6	962.16	3.56	29.50	26.84	25.20	31.42	54.00	-22.58	QP



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7.10 Radiated Spurious Emissions Above 1GHz

Test Requirement	47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method:	ANSI C63.10 (2013) Section 6.6
Measurement Distance:	3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.10.1 E.U.T. Operation

Operating Environment:

Temperature:	21.3 °C	Humidity:	54.6 % RH	Atmospheric Pressure: 1010	mbar
--------------	---------	-----------	-----------	----------------------------	------

7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	05	TX_non-Hop mode(Left earbuds)+travel case_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	06	TX_non-Hop mode(Left earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.
Final test	08	TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	09	TX_non-Hop mode(Right earbuds)+travel case_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case. All modes have been tested and only the data of worst case is recorded in the report.
Pre-scan	10	TX_non-Hop mode(Right earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.



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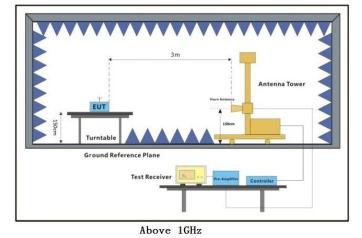
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7.10.3 Test Setup Diagram





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7.10.4 Measurement Procedure and Data

a. 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.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. 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.

d. 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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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 re-tested one by one using peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. Scan from 1GHz to 25GHz, the disturbance above 18GHz 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.

3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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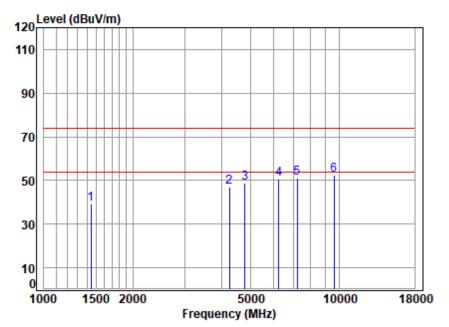
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Site : chamber Condition: 3m HORIZONTAL Job No : 03089AT/03090AT Mode : 2402 TX SE Note : BT-L											
		Cable	Ant	Preamp	Read		Limit	0ver			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
1	1443.509	3.17	25.60	39.92	50.49	39.34	74.00	-34.66	peak		
2	4254.921	6.53	32.81	41.65	49.17	46.86	74.00	-27.14	peak		
3	4804.000	7.10	33.62	42.14	50.25	48.83	74.00	-25.17	peak		
4	6249.464	8.27	34.60	42.22	49.99	50.64	74.00	-23.36	peak		
5	7206.000	8.74	35.67	41.50	48.17	51.08	74.00	-22.92	peak		

9608.000 10.81 37.34 37.76 42.22 52.61 74.00 -21.39 peak



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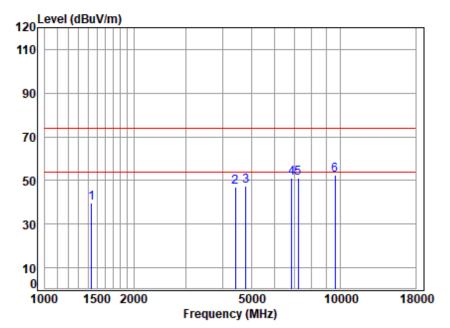


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0ver

Test Mode: 04; Polarity: Vertical; Modulation:GFSK; Channel:Low



Site	:	chamber
Condition	1:	3m VERTICAL
Job No	:	03089AT/03090AT
Mode	:	2402 TX SE
Note	:	BT-L
		Cable Ant Preamp Read Limit
	Fr	req Loss Factor Factor Level Level Line

	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1439.343	3.17	25.59	39.92	50.65	39.49	74.00	-34.51	peak
2	4417.841	6.68	32.94	41.80	49.00	46.82	74.00	-27.18	peak
3	4804.000	7.10	33.62	42.14	48.67	47.25	74.00	-26.75	peak
4	6855.063	8.47	35.25	41.80	48.96	50.88	74.00	-23.12	peak
5	7206.000	8.74	35.67	41.50	48.42	51.33	74.00	-22.67	peak
6	9608.000	10.81	37.34	37.76	41.98	52.37	74.00	-21.63	peak



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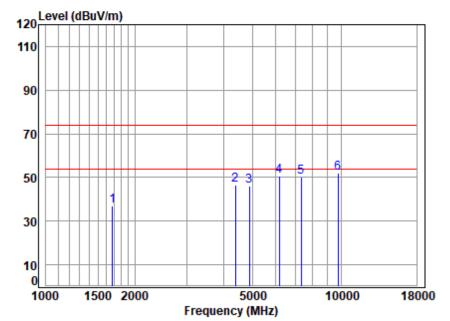
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Site Condi Job N Mode Note	ition: 3m No : 030 : 244	089AT/0 41 TX 9 -L Cable	03090A 5E Ant	F Preamp Factor	Read		Limit Line	Over	Remark	
	Freq	LOSS	Factor	Factor	rever	rever	LTUE	LIMIC	кешанк	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1677.621	3.41	26.59	40.05	47.11	37.06	74.00	-36.94	peak	
2	4392.376	6.66	32.92	41.78	48.80	46.60	74.00	-27.40	peak	
3	4882.000	7.18	33.77	42.20	47.13	45.88	74.00	-28.12	peak	
4	6177.627	8.27	34.60	42.27	50.03	50.63	74.00	-23.37	peak	
5	7323.000	8.85	35.76	41.40	46.84	50.05	74.00	-23.95	peak	

9764.000 10.76 37.41 37.50 41.36 52.03 74.00 -21.97 peak



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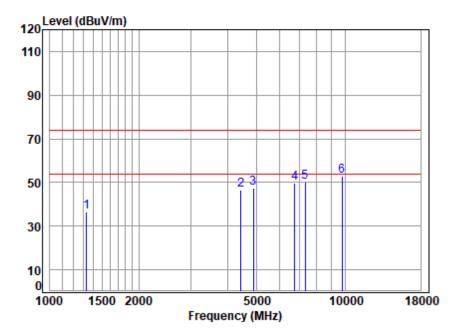
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Test Mode: 04; Polarity: Vertical; Modulation:GFSK; Channel:middle



Site	: cha	amber							
Condition	: 3m	VERTI	CAL						
Job No	: 030	989AT/	03090A	Т					
Mode	: 244	41 TX	SE						
Note	: BT-	-L							
		Cable	Ant	Preamp	Read		Limit	0ver	
I	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 1001	200	2 00	25 20	20 00	10 10	26 66	74 00	27 24	maak

1	1331.288	3.00	25.38	39.85	48.13	36.66	74.00 -37.34 peak
2	4443.453	6.71	32.96	41.82	48.53	46.38	74.00 -27.62 peak
3	4882.000	7.18	33.77	42.20	48.53	47.28	74.00 -26.72 peak
4	6756.708	8.42	35.07	41.86	48.10	49.73	74.00 -24.27 peak
5	7323.000	8.85	35.76	41.40	47.13	50.34	74.00 -23.66 peak
6	9764.000	10.76	37.41	37.50	42.19	52.86	74.00 -21.14 peak



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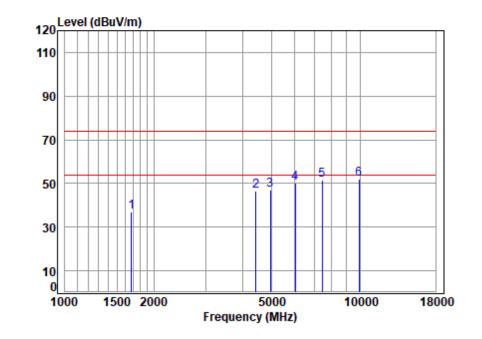
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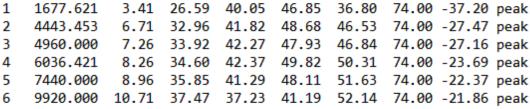
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Test Mode: 04; Polarity: Horizontal; Modulation:GFSK; Channel:High



Job N	: ch tion: 3m lo : 03 : 24	089AT/	03090A	т					
Note	: BT	-L							
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	3.41	26.59	40.05	46.85	36.80	74.00	-37.20	peak
2	1112 153	6 71	32 96	/1 92	18 68	16 53	74 00	27 /7	nook





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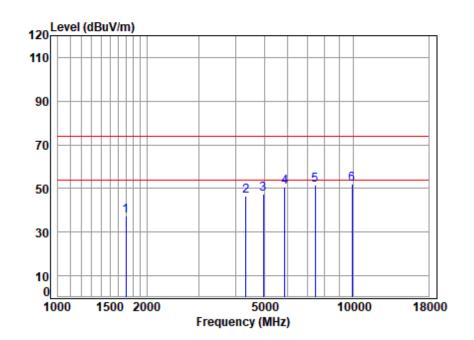
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Test Mode: 04; Polarity: Vertical; Modulation:GFSK; Channel:High



Site :	chamber
Condition:	3m VERTICAL
Job No :	03089AT/03090AT
Mode :	2480 TX SE
Note :	BT-L
	Cable Ant Dreamn

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1697.129	3.43	26.69	40.06	47.35	37.41	74.00	-36.59	peak
2	4341.886	6.61	32.88	41.73	48.70	46.46	74.00	-27.54	peak
3	4960.000	7.26	33.92	42.27	48.46	47.37	74.00	-26.63	peak
4	5864.443	8.24	34.49	42.39	50.36	50.70	74.00	-23.30	peak
5	7440.000	8.96	35.85	41.29	47.93	51.45	74.00	-22.55	peak
6	9920.000	10.71	37.47	37.23	41.18	52.13	74.00	-21.87	peak



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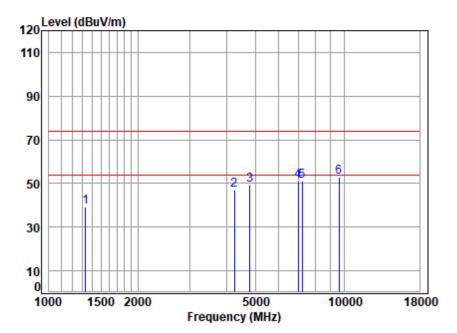
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:Low



	ition: 3m No : 030 : 240 : BT-	089AT/0 02 TX 2 -R Cable	03090A SE Ant	T Preamp Factor		Limit	Over Limit	Remark	
	MHz	dB	dB/m		 dBuV/m		dB		-
1 2	1331.288 4254.921	3.00 6.53		39.85 41.65					





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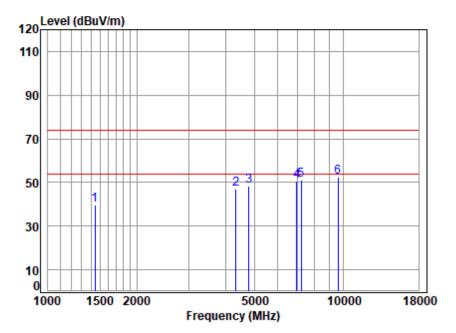
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:Low



Site :	chamber	
Condition:	3m VERTICAL	
Job No :	03089AT/03090AT	
Mode :	2402 TX SE	
Note :	BT-R	
	Cable Ant Preamn	Ro

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1443.509	3.17	25.60	39.92	50.82	39.67	74.00	-34.33	peak
2	4329.354	6.60	32.87	41.72	49.36	47.11	74.00	-26.89	peak
3	4804.000	7.10	33.62	42.14	49.74	48.32	74.00	-25.68	peak
4	6954.852	8.52	35.42	41.73	48.53	50.74	74.00	-23.26	peak
5	7206.000	8.74	35.67	41.50	48.26	51.17	74.00	-22.83	peak
6	9608.000	10.81	37.34	37.76	42.16	52.55	74.00	-21.45	peak



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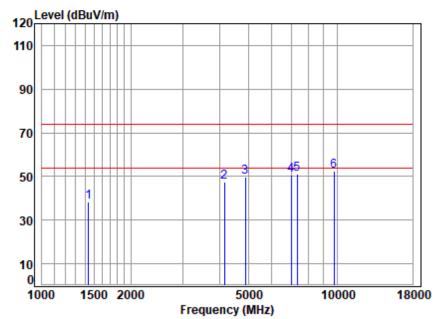
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Site Cond: Job M Mode Note	ition: 3m No : 030 : 244	089AT/0	03090A	г					
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1439.343	3.17	25.59	39.92	49.57	38.41	74.00	-35.59	peak
2	4157.664	6.44	32.73	41.56	49.64	47.25	74.00	-26.75	peak
3	4882.000	7.18	33.77	42.20	51.04	49.79	74.00	-24.21	peak
4	6995.172	8.54	35.49	41.70	48.32	50.65	74.00	-23.35	peak
5	7323.000	8.85	35.76	41.40	47.79	51.00	74.00	-23.00	peak

9764.000 10.76 37.41 37.50 41.96 52.63 74.00 -21.37 peak



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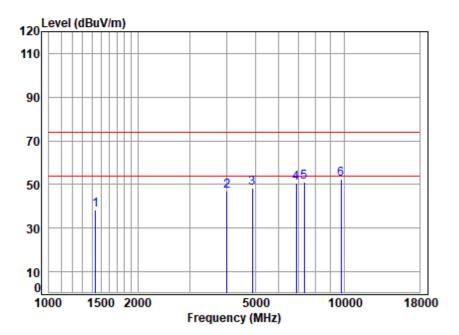
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:middle



Site	:	cha	amber				
Conditio	n:	Зm	VERTI	CAL			
Job No	:	030	89AT/	03090A	Т		
Mode	:	244	1 TX	SE			
Note	:	BT-	R				
			Cable	Ant	Preamp	Read	
	Fr	ea	Loss	Factor	Factor	Level	14

	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1439.343	3.17	25.59	39.92	49.37	38.21	74.00	-35.79	peak
2	4015.929	6.30	32.61	41.42	49.60	47.09	74.00	-26.91	peak
3	4882.000	7.18	33.77	42.20	49.41	48.16	74.00	-25.84	peak
4	6874.906	8.48	35.28	41.78	48.79	50.77	74.00	-23.23	peak
5	7323.000	8.85	35.76	41.40	47.76	50.97	74.00	-23.03	peak
6	9764.000	10.76	37.41	37.50	41.68	52.35	74.00	-21.65	peak



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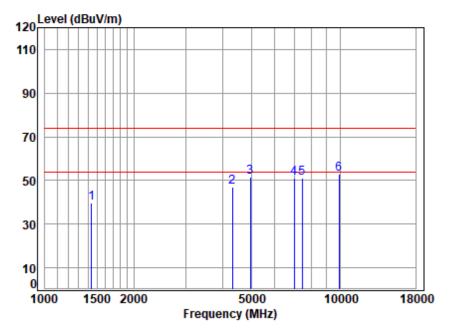
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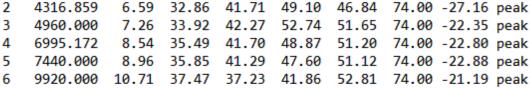
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Test Mode: 08; Polarity: Horizontal; Modulation:GFSK; Channel:High



	ition: 3m No : 030 : 248	089AT/0 30 TX 9	03090A	г				
	Freq			Preamp Factor		Limit	Over Limit	Remark
	MHz	dB		dB	 		dB	
1 2	1439.343 4316.859			39.92 41.71				





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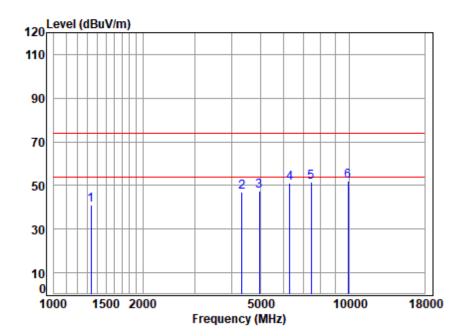
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Test Mode: 08; Polarity: Vertical; Modulation:GFSK; Channel:High



Site	:	chamber		
Condition	:	3m VERTICA	AL	
Job No	:	03089AT/03	3090AT	
Mode	:	2480 TX SE	E	
Note	:	BT-R		
		Cable	Ant Preamp	Read

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1335.141	3.00	25.38	39.85	52.41	40.94	74.00	-33.06	peak
2	4341.886	6.61	32.88	41.73	49.27	47.03	74.00	-26.97	peak
3	4960.000	7.26	33.92	42.27	48.74	47.65	74.00	-26.35	peak
4	6285.695	8.27	34.60	42.19	50.33	51.01	74.00	-22.99	peak
5	7440.000	8.96	35.85	41.29	47.99	51.51	74.00	-22.49	peak
6	9920.000	10.71	37.47	37.23	41.07	52.02	74.00	-21.98	peak



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8 Emission Test Results

8.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 6.2

Limit:

	Conducted	limit(dBµV)					
Frequency of emission(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 logarithm of t	*Decreases with the logarithm of the frequency.						
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz							

8.1.1 E.U.T. Operation

Operating Environment: Temperature: 24.5 °C

Humidity: 59.5 % RH

Atmospheric Pressure: 1010 mbar

8.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	06	TX_non-Hop mode(Left earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.
Final test	10	TX_non-Hop mode(Right earbuds)+travel case+adapter_Keep the EUT in continuously transmitting mode with GFSK modulation, pi/4DQPSK modulation, 8DPSK modulation and charge by travel case+adapter. All modes have been tested and only the data of worst case is recorded in the report.



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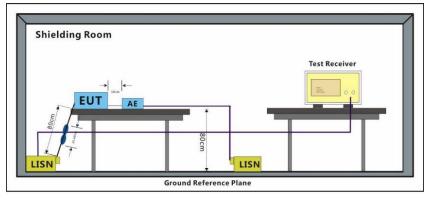
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8.1.3 Test Setup Diagram



8.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50 μ H + 5ohm 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.

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.

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 was bonded to the horizontal 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.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor



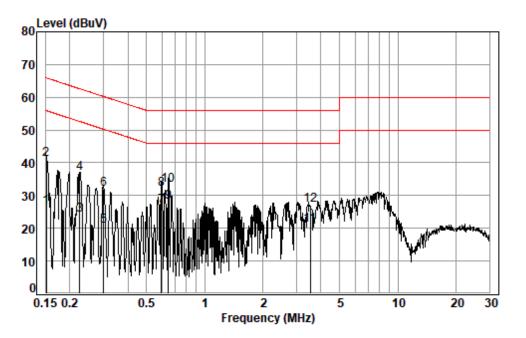
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Test Mode: 06; Line: Live line; Modulation:8DPSK; Channel:Low

Site :	Shielding	Room
Condition:	Line	
Job No. :	03089AT	
Test mode:	06	

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1516	0.03	9.70	16.87	26.60	55.91	-29.31	Average
2	0.1516	0.03	9.70	31.47	41.20	65.91	-24.71	QP
3	0.2256	0.04	9.73	14.33	24.10	52.61	-28.51	Average
4	0.2256	0.04	9.73	27.18	36.95	62.61	-25.66	QP
5	0.3003	0.05	9.74	10.98	20.77	50.24	-29.47	Average
6	0.3003	0.05	9.74	22.03	31.82	60.24	-28.42	QP
7	0.5979	0.08	9.77	16.79	26.64	46.00	-19.36	Average
8	0.5979	0.08	9.77	22.14	31.99	56.00	-24.01	QP
9	0.6474	0.08	9.77	18.12	27.97	46.00	-18.03	Average
10	0.6474	0.08	9.77	23.39	33.24	56.00	-22.76	QP
11	3.5259	0.15	9.86	11.03	21.04	46.00	-24.96	Average
12	3.5259	0.15	9.86	16.98	26.99	56.00	-29.01	QP



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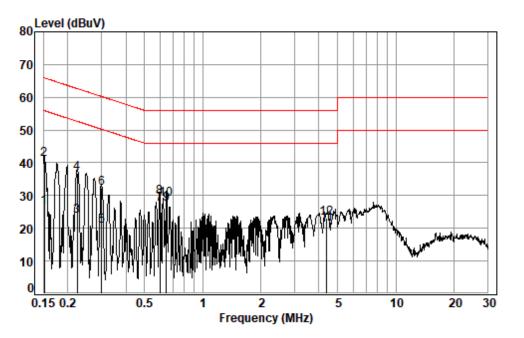
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Test Mode: 06; Line: Neutral Line; Modulation:8DPSK; Channel:Low

Site :	Shielding	Room
Condition:	Neutral	
Job No. :	03089AT	
Test mode:	06	

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1516	0.03	9.71	16.63	26.37	55.91	-29.54	Average
2	0.1516	0.03	9.71	31.24	40.98	65.91	-24.93	QP
3	0.2244	0.04	9.73	13.97	23.74	52.66	-28.92	Average
4	0.2244	0.04	9.73	26.95	36.72	62.66	-25.94	QP
5	0.3003	0.05	9.74	10.80	20.59	50.24	-29.65	Average
6	0.3003	0.05	9.74	22.43	32.22	60.24	-28.02	QP
7	0.6011	0.08	9.77	17.63	27.48	46.00	-18.52	Average
8	0.6011	0.08	9.77	19.74	29.59	56.00	-26.41	QP
9	0.6474	0.08	9.77	17.43	27.28	46.00	-18.72	Average
10	0.6474	0.08	9.77	18.99	28.84	56.00	-27.16	QP
11	4.4003	0.16	9.90	11.12	21.18	46.00	-24.82	Average
12	4.4003	0.16	9.90	13.12	23.18	56.00	-32.82	QP



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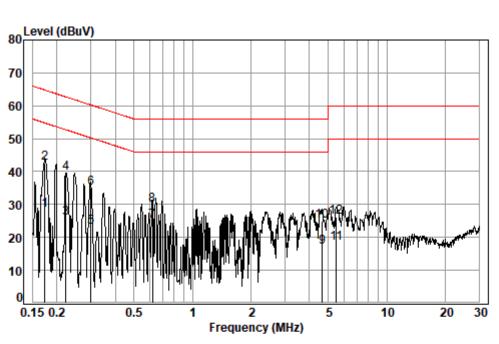
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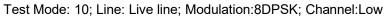
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Site : Shielding Room Condition: Line Job No. : 03089AT Test mode: 10

rest	moue. 10							
		Cable	LISN	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1740	0.03	9.71	18.67	28.41	54 77	-26 36	Average
2								-
	0.1740	0.03	9.71	32.99	42.73		-22.04	-
3	0.2232	0.04	9.73	16.16	25.93	52.70	-26.77	Average
4	0.2232	0.04	9.73	29.77	39.54	62.70	-23.16	QP
5	0.3003	0.05	9.74	13.44	23.23	50.24	-27.01	Average
6	0.3003	0.05	9.74	25.07	34.86	60.24	-25.38	QP
7	0.6238	0.08	9.77	14.96	24.81	46.00	-21.19	Average
8	0.6238	0.08	9.77	20.07	29.92	56.00	-26.08	QP
9	4.6469	0.16	9.91	7.04	17.11	46.00	-28.89	Average
10	4.6469	0.16	9.91	14.79	24.86	56.00	-31.14	QP
11	5.5054	0.16	9.96	8.28	18.40	50.00	-31.60	Average
12	5.5054	0.16	9.96	16.14	26.26	60.00	-33.74	QP



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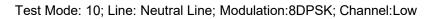
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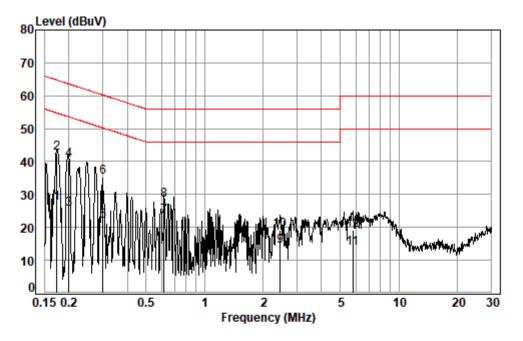
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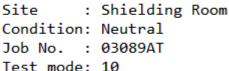


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IESC	moue. 10							
		Cable	LISN	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
	1.112	ub	ab	abav	abav	abav	ub	
1	0.1740	0.03	9.72	17.63	27.38	54.77	-27.39	Average
2	0.1740	0.03	9.72	32.75	42.50	64.77	-22.27	QP
3	0.2007	0.04	9.72	15.88	25.64	53.58	-27.94	Average
4	0.2007	0.04	9.72	30.76	40.52	63.58	-23.06	QP
5	0.3003	0.05	9.74	12.00	21.79	50.24	-28.45	Average
6	0.3003	0.05	9.74	25.50	35.29	60.24	-24.95	QP
7	0.6205	0.08	9.77	13.46	23.31	46.00	-22.69	Average
8	0.6205	0.08	9.77	18.37	28.22	56.00	-27.78	QP
9	2.4606	0.13	9.82	4.23	14.18	46.00	-31.82	Average
10	2.4606	0.13	9.82	9.27	19.22	56.00	-36.78	QP
11	5.8050	0.16	9.98	3.58	13.72	50.00	-36.28	Average
12	5.8050	0.16	9.98	9.11	19.25	60.00	-40.75	QP



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Test Setup Photo 9

Refer to Setup Photos

10 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZEM2103003089AT



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11 Appendix

Appendix for 15.247

For Right earbuds

1. Bandwidth

1.1 Test Result

Test Mode	Frequency	ТХ Туре	ANT No.	20dB Bandwidth	Verdict
Test Mode	(MHz)		ANT NO.	Test Result (MHz)	verdict
	2402	SISO	1	0.964	PASS
GFSK	2441	SISO	1	0.964	PASS
	2480	SISO	1	0.964	PASS
Pi/4DQPSK	2402	SISO	1	1.234	PASS
	2441	SISO	1	1.234	PASS
	2480	SISO	1	1.234	PASS
	2402	SISO	1	1.277	PASS
8DPSK	2441	SISO	1	1.277	PASS
	2480	SISO	1	1.277	PASS

Test Mode	Frequency	TV Tune	ANT No.	99% Occupied Bandwidth		
Test Mode	(MHz)	ТХ Туре		Test Res	ult (MHz)	
GFSK	2402	SISO	1	0.886	Only for Report Use	
	2441	SISO	1	0.880	Only for Report Use	
	2480	SISO	1	0.885	Only for Report Use	
Pi/4DQPSK	2402	SISO	1	1.155	Only for Report Use	
	2441	SISO	1	1.157	Only for Report Use	
	2480	SISO	1	1.157	Only for Report Use	
	2402	SISO	1	1.163	Only for Report Use	
8DPSK	2441	SISO	1	1.158	Only for Report Use	
	2480	SISO	1	1.160	Only for Report Use	



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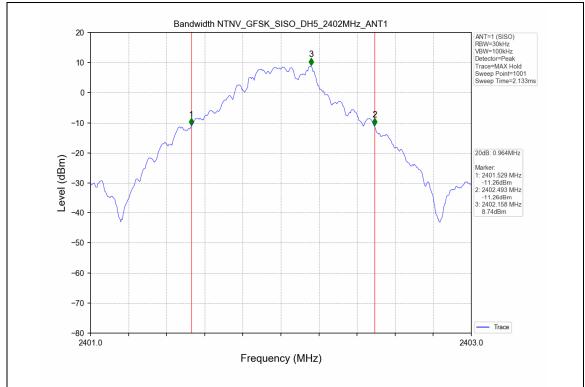
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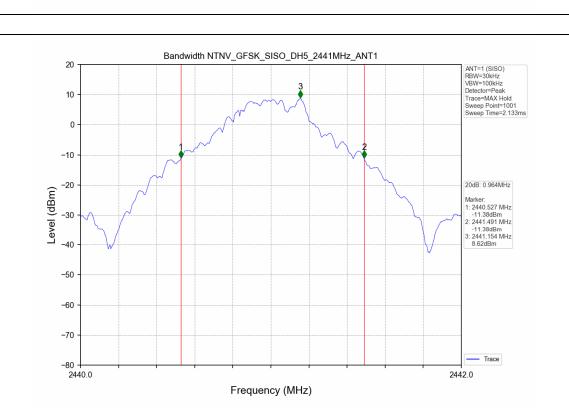
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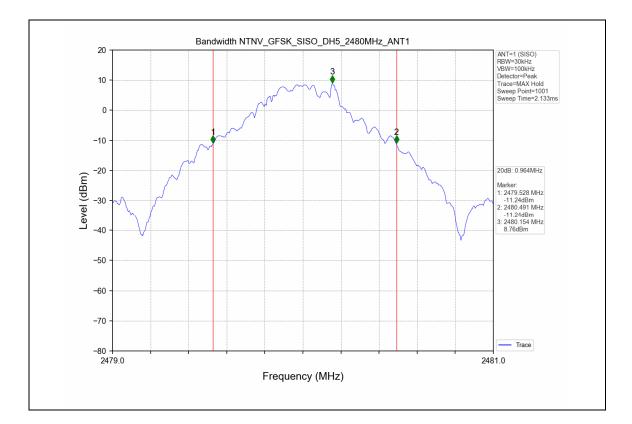
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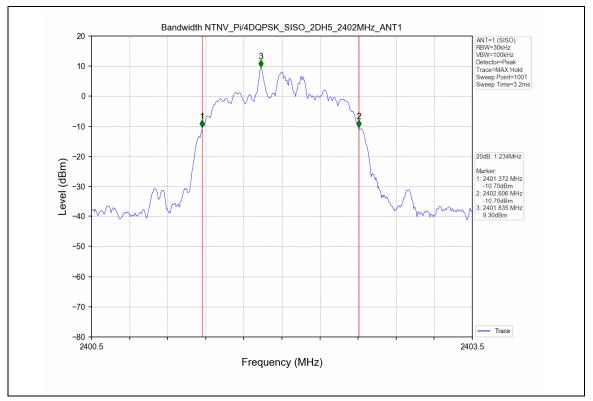


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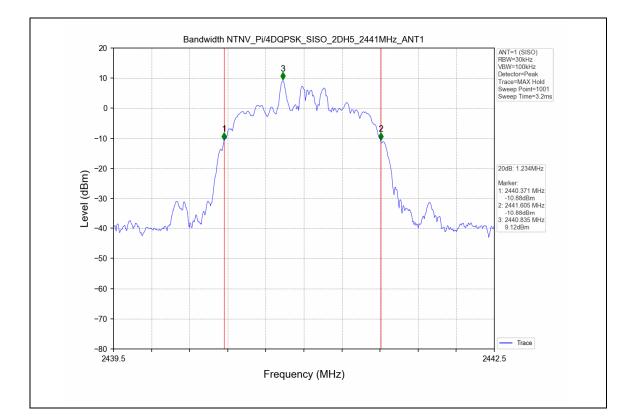
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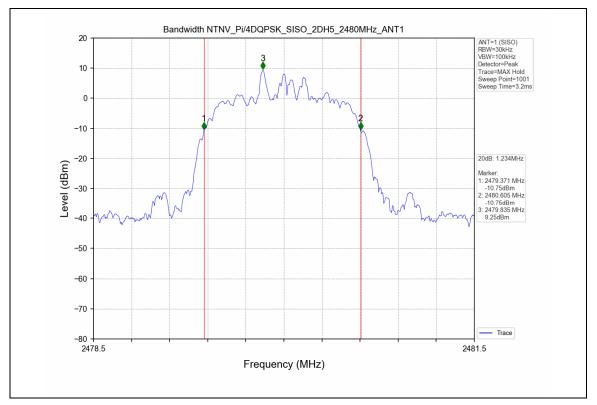


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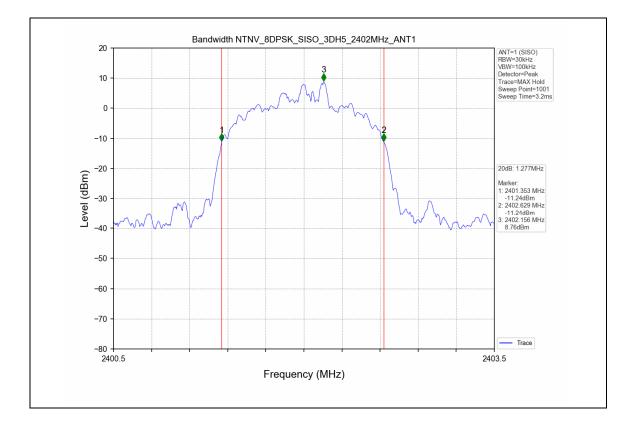
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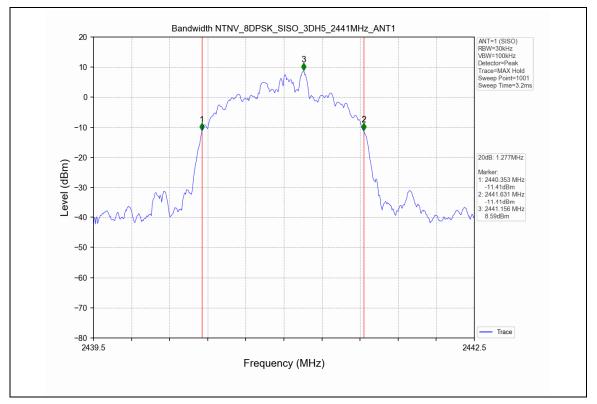


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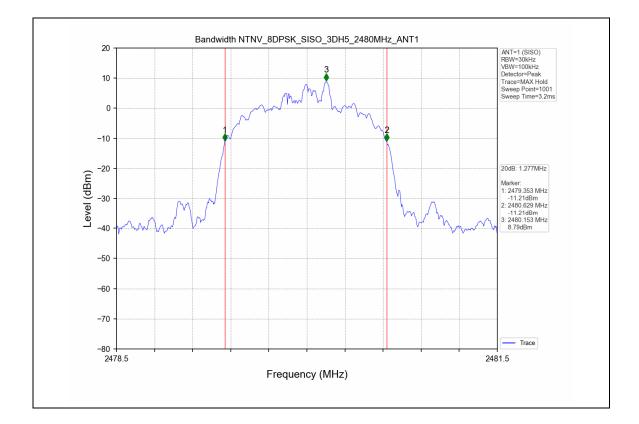
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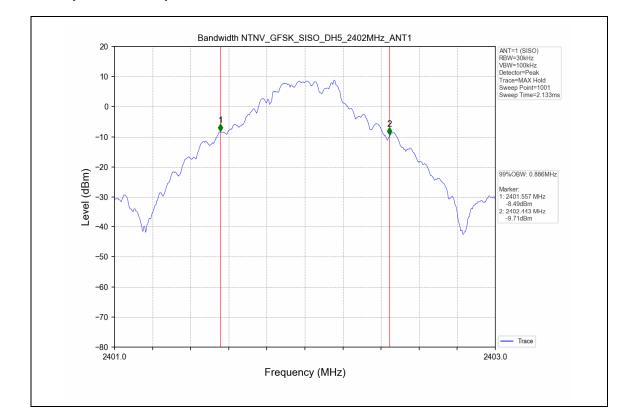


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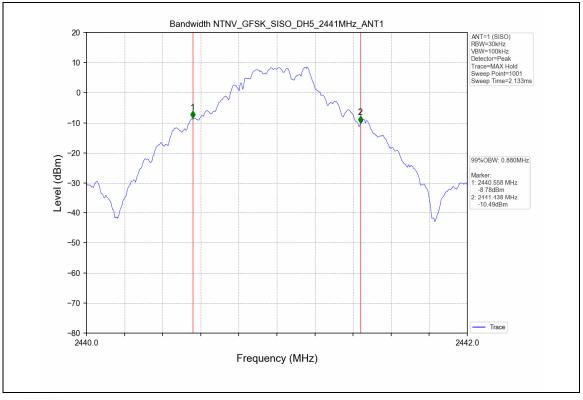
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1.3 Test Graph - 99% Occupied Bandwidth





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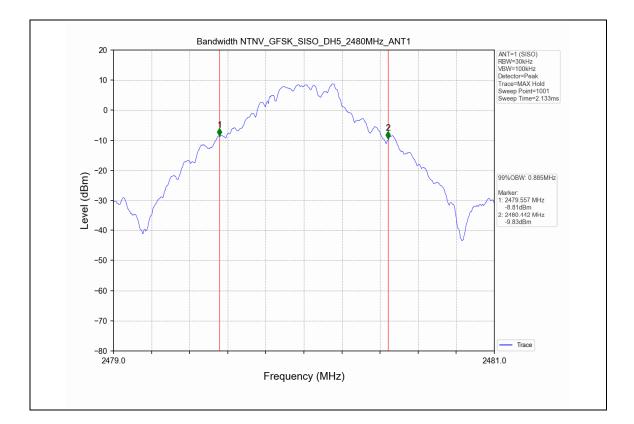
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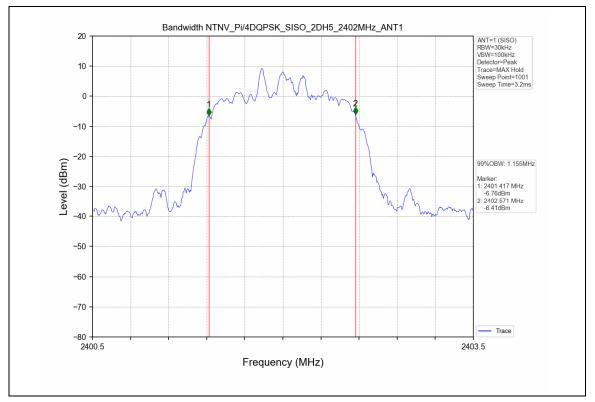


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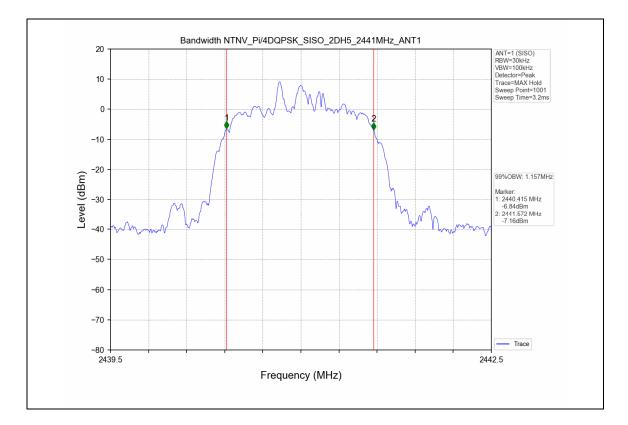
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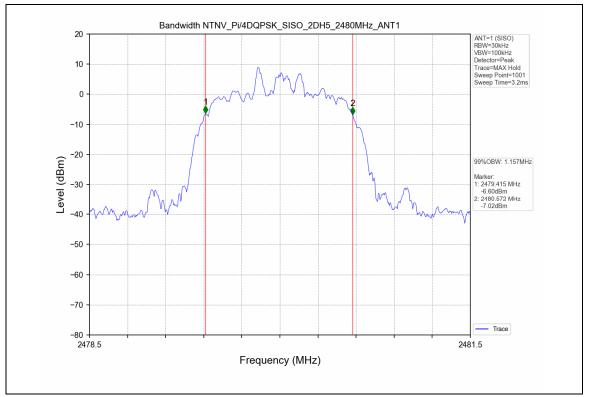


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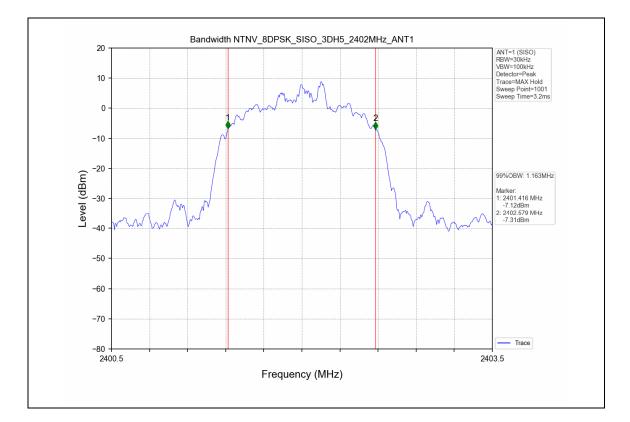
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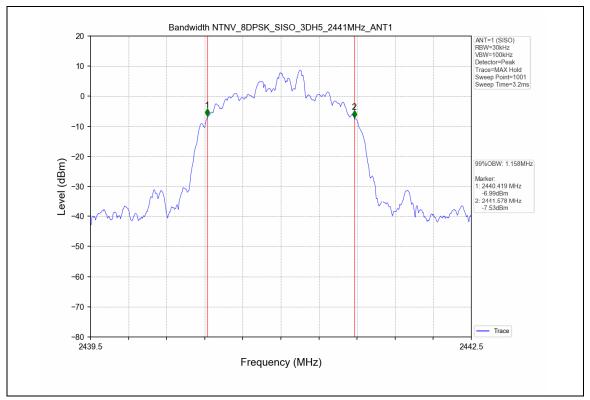


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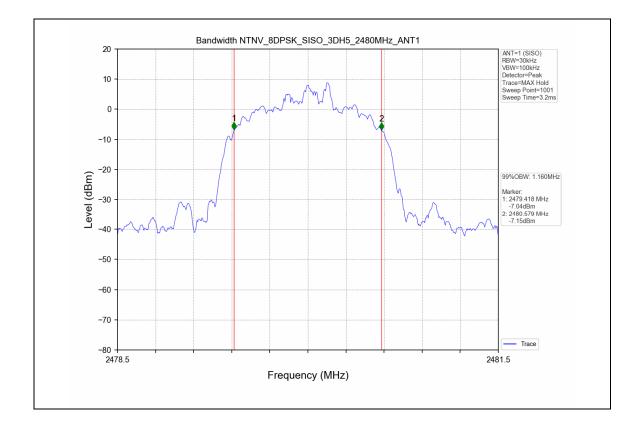
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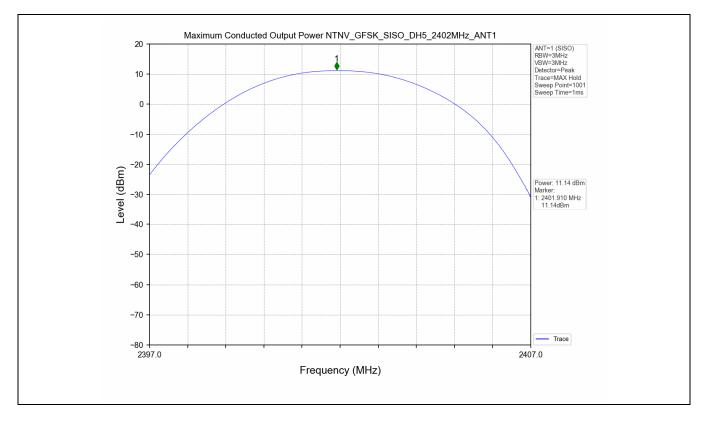
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2. Maximum Conducted Output Power

2.1 Test Result

Test Mode	Frequency (MHz)	Тх Туре	Measured Peak Output Power (dBm) Ant 1	Limits (dBm)	Verdict
	2402	SISO	11.14	30	PASS
GFSK	2441	SISO	10.95	30	PASS
	2480	SISO	11.08	30	PASS
	2402	SISO	11.14	20.97	PASS
Pi/4DQPSK	2441	SISO	10.95	20.97	PASS
	2480	SISO	11.10	20.97	PASS
	2402	SISO	11.28	20.97	PASS
8DPSK	2441	SISO	11.09	20.97	PASS
	2480	SISO	11.22	20.97	PASS

2.2 Test Graph



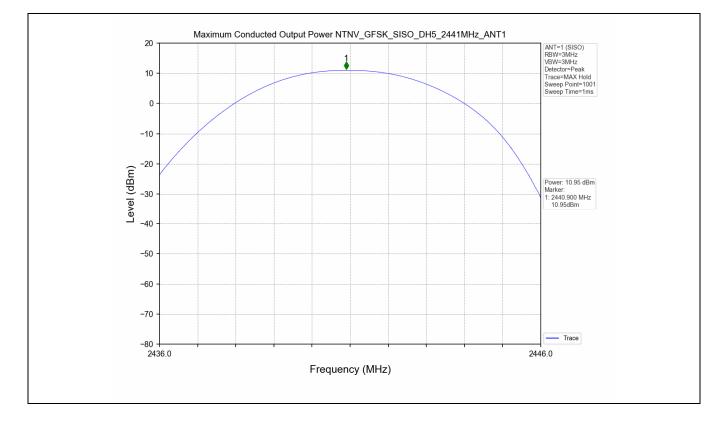


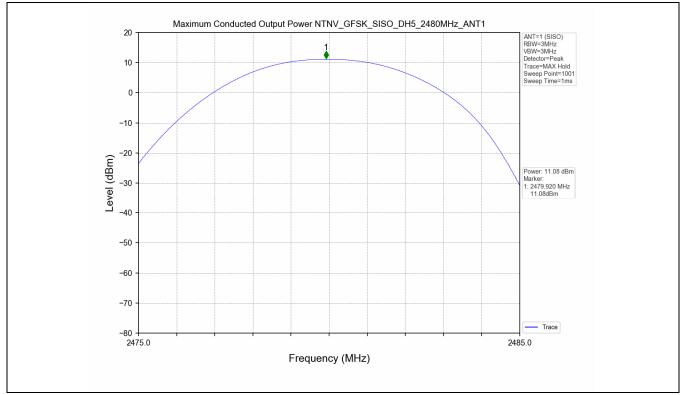


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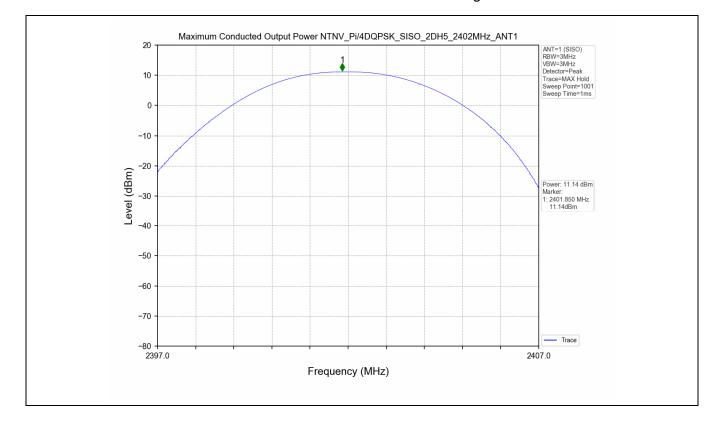
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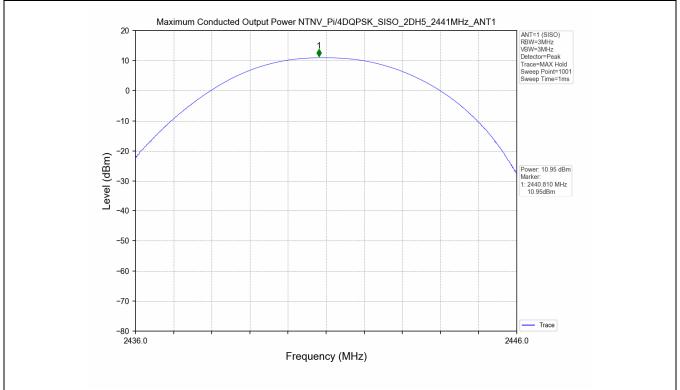
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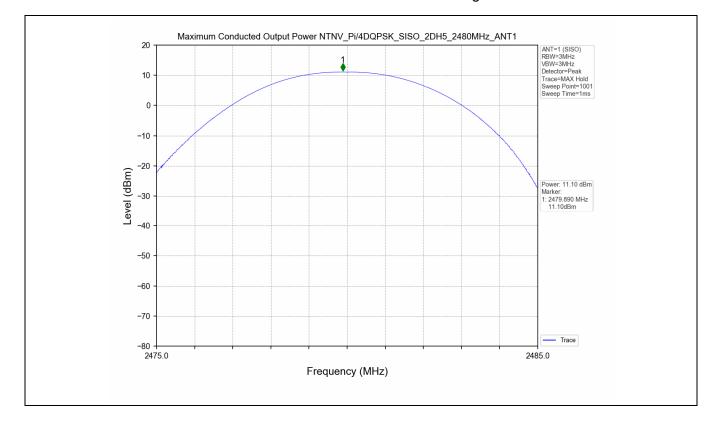
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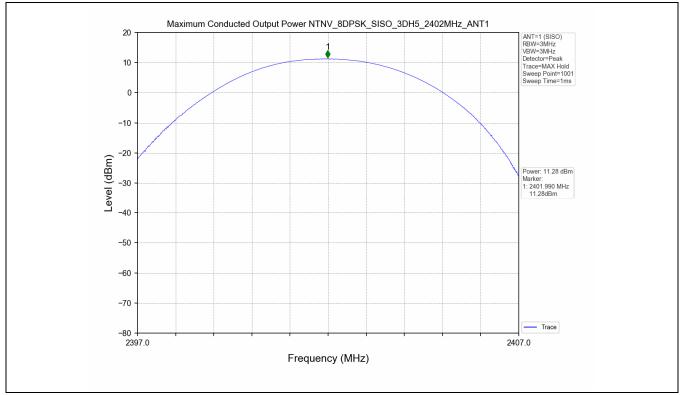


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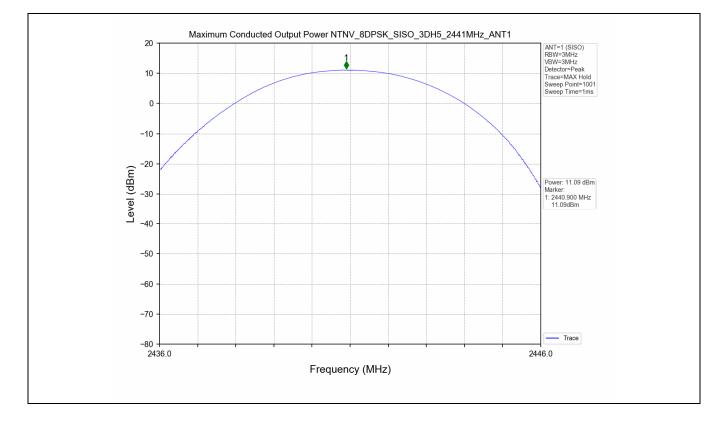
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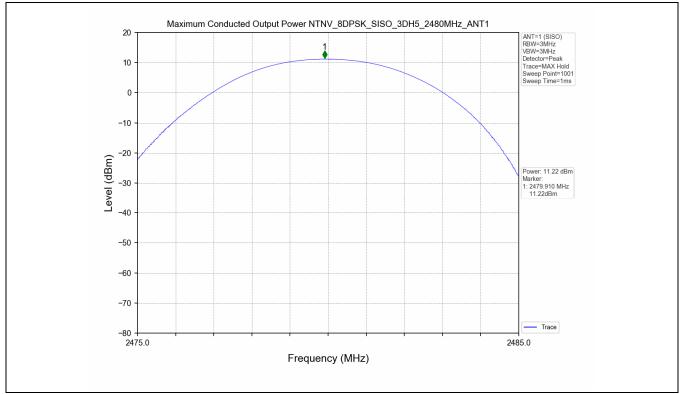


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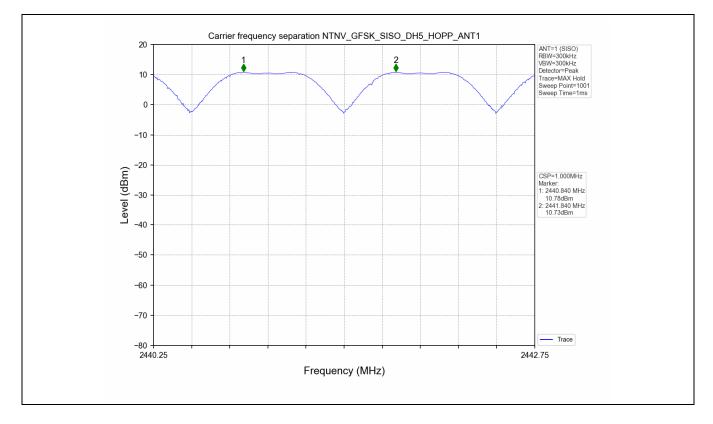
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3. Carrier frequency separation

3.1 Test Result

Test Mode	ТХ Туре	ANT No.	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limits (MHz)	Verdict
GFSK	SISO	1	1.000	0.964	≥0.964	PASS
Pi/4DQPSK	SISO	1	0.999	1.234	≥0.823	PASS
8DPSK	SISO	1	1.005	1.277	≥0.851	PASS

3.2 Test Graph



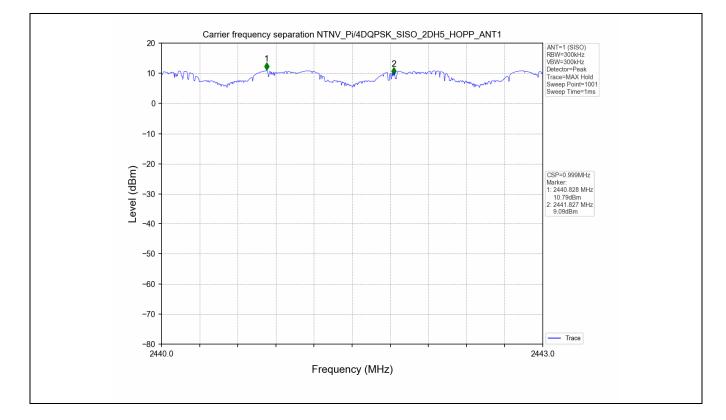


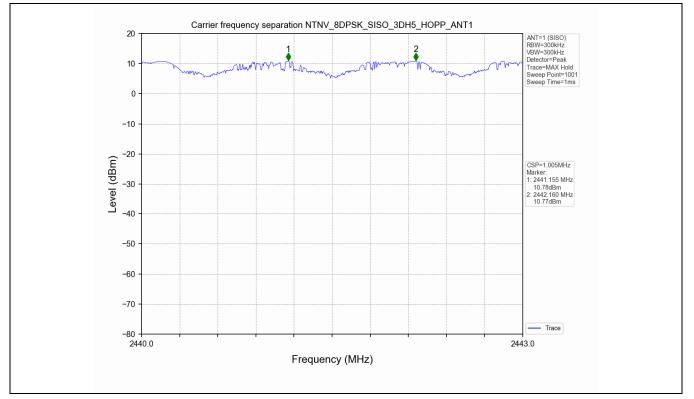


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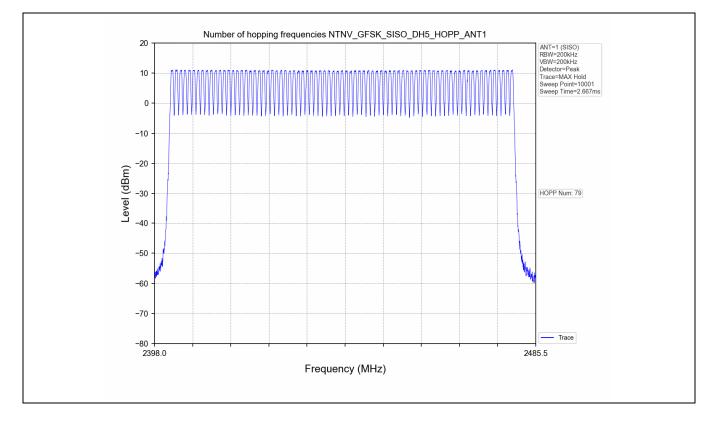
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4. Number of hopping frequencies

4.1 Test Result

Test Mode	ТХ Туре	ANT No.	Num of Hopping Frequencies	Limits	Verdict
GFSK	SISO	1	79	≥15	PASS
Pi/4DQPSK	SISO	1	79	≥15	PASS
8DPSK	SISO	1	79	≥15	PASS

4.2 Test Graph



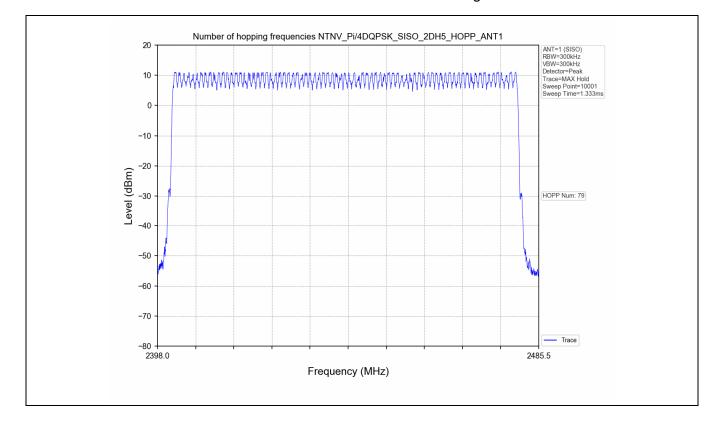


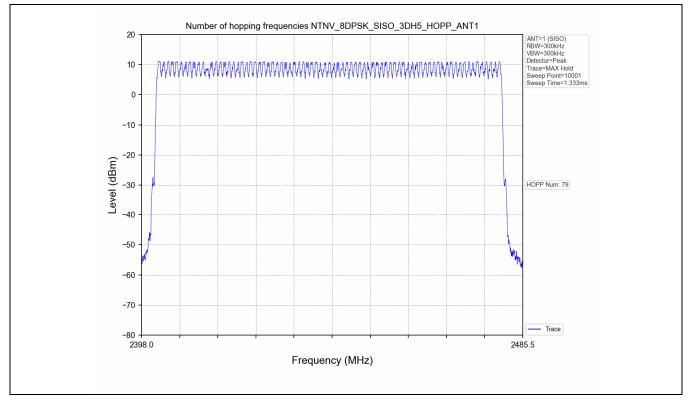


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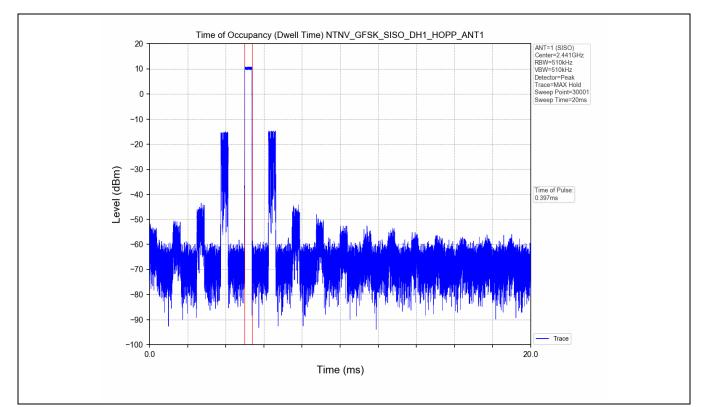
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5. Time of Occupancy (Dwell Time)

5.1 Test Result

Test Mode	Packet Type	ТХ Туре	ANT	Duration of Single Pulse (ms)	ation Poriod	Num of Pulse in Observation Period	Dwell Time (ms)	Limits (ms)	Verdict
	DH1	SISO	1	0.397	31.6	320	127.040	≤400	PASS
GFSK	DH3	SISO	1	1.653	31.6	160	264.480	≤400	PASS
	DH5	SISO	1	2.882	31.6	106	305.492	≤400	PASS
	2DH1	SISO	1	0.401	31.6	320	128.320	≤400	PASS
Pi/4DQ PSK	2DH3	SISO	1	1.653	31.6	160	264.480	≤400	PASS
1 OK	2DH5	SISO	1	2.885	31.6	107	308.695	≤400	PASS
	3DH1	SISO	1	0.383	31.6	320	122.560	≤400	PASS
8DPSK	3DH3	SISO	1	1.634	31.6	160	261.440	≤400	PASS
	3DH5	SISO	1	2.885	31.6	106	305.810	≤400	PASS

5.2 Test Graph





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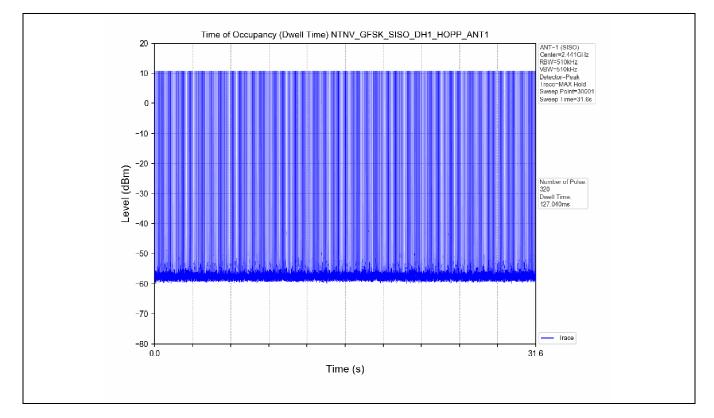
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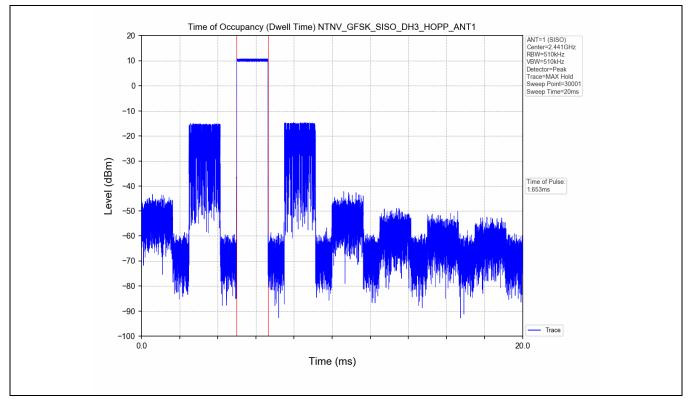


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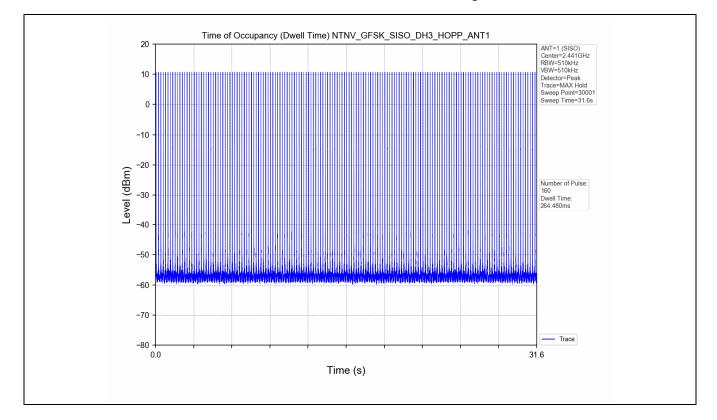
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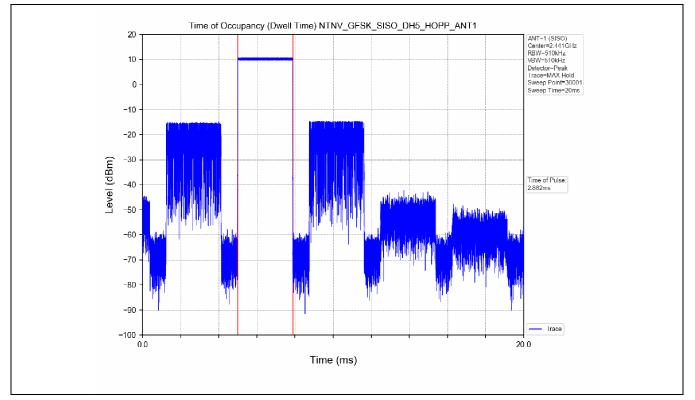


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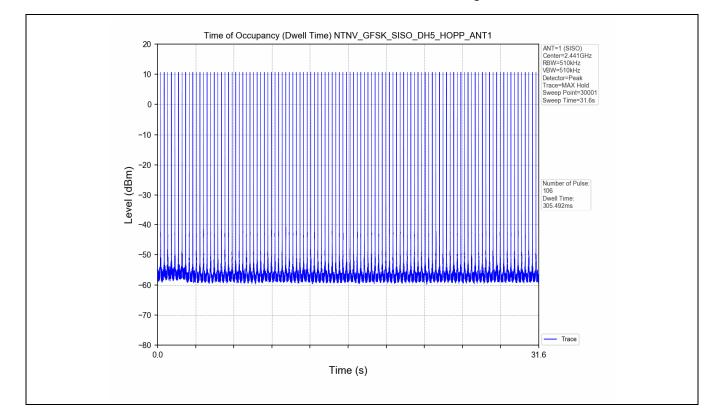
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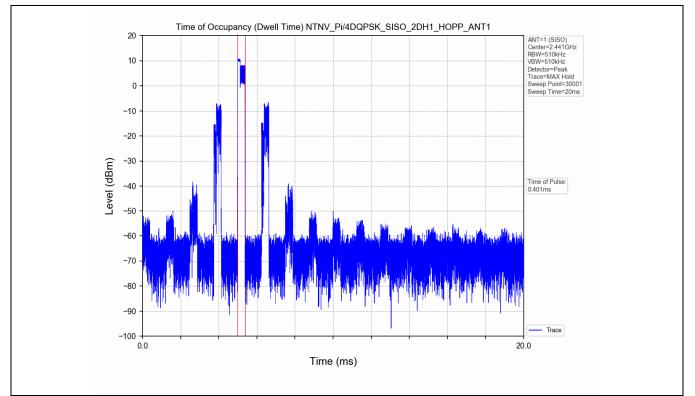


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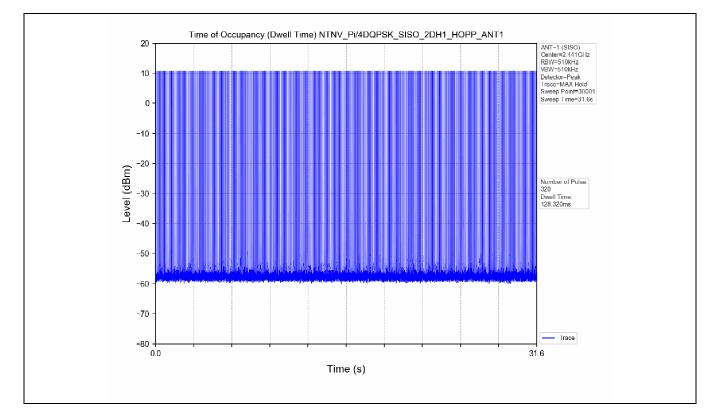
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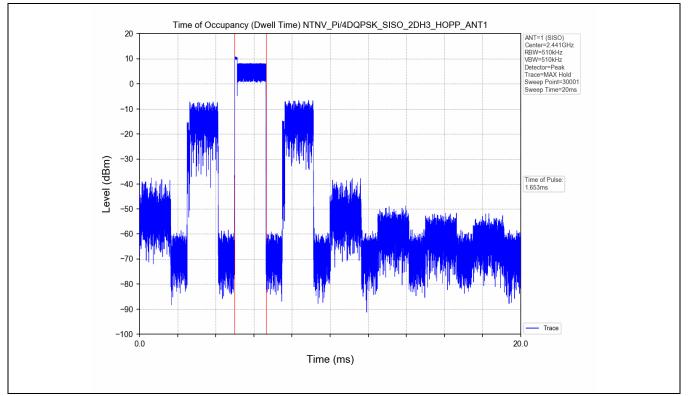


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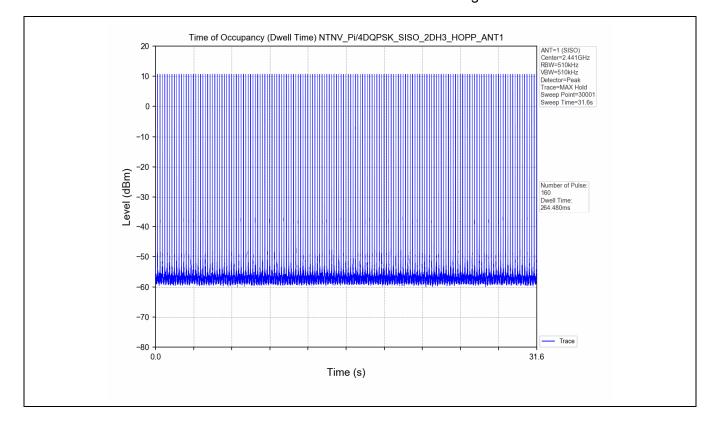
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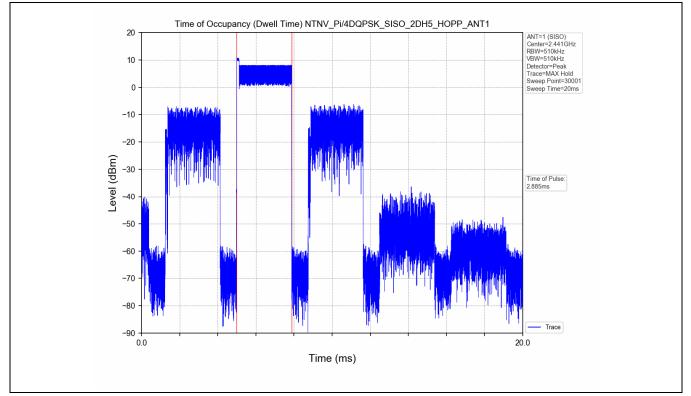
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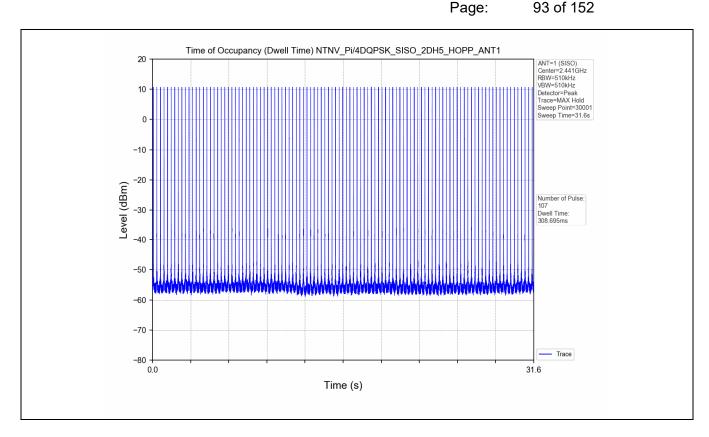
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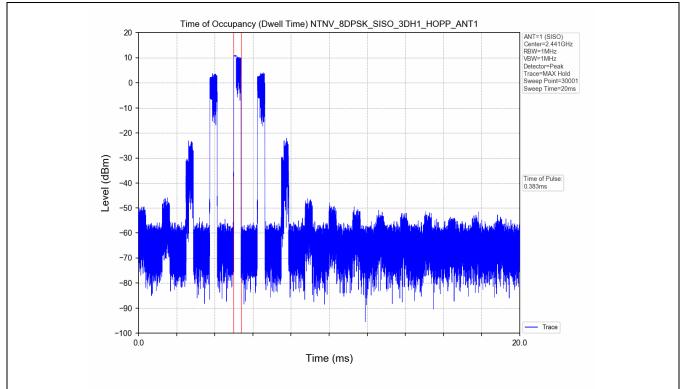
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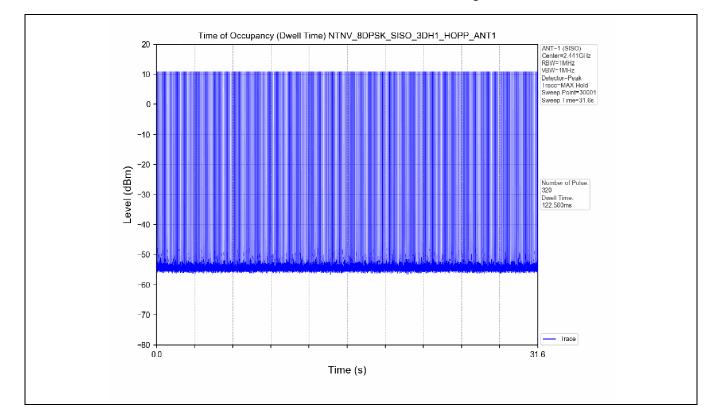
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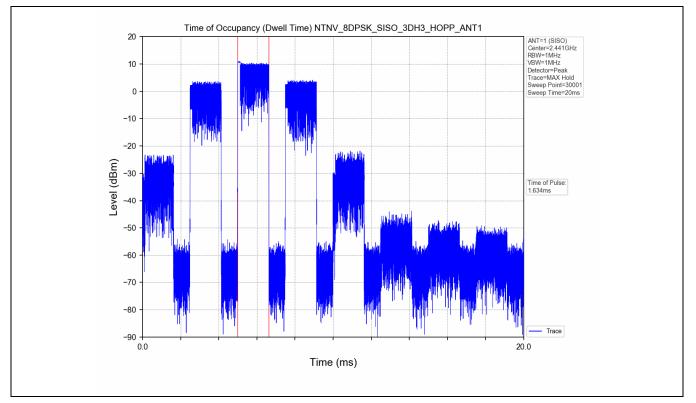


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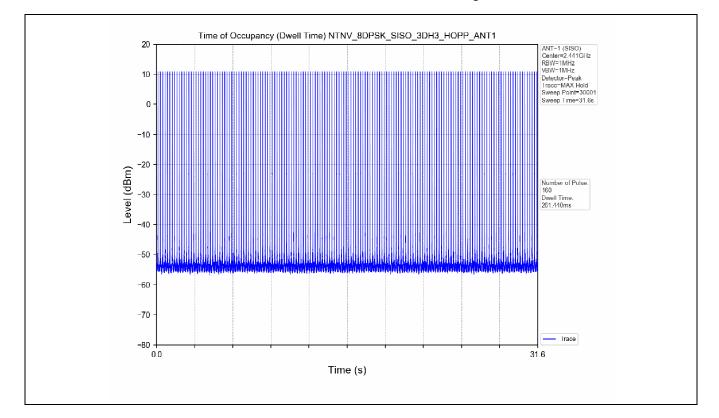
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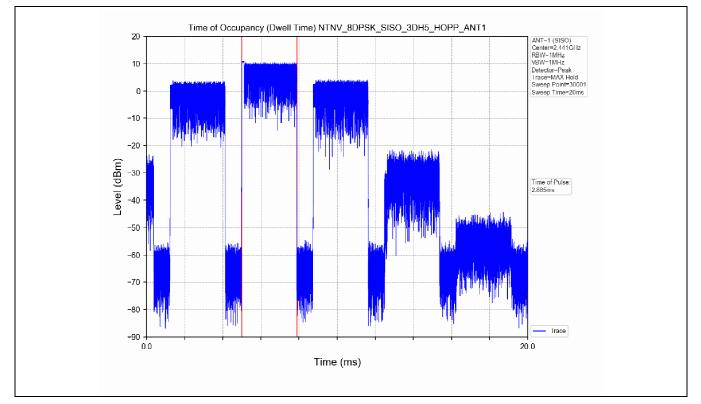


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