

Test Report

Report No. : MTi260123003-0107E1
Date of issue : 2026-07-23
Applicant : Changsha Sonicake Technology Co., Ltd.
Product : Wireless Audio System
Model(s) : QWS-20
FCC ID : 2A7J4-QWS20

Shenzhen Microtest Co., Ltd.

TEST REPORT

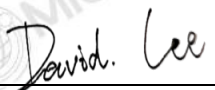
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Test Result Certification		
Applicant	Changsha Sonicake Technology Co., Ltd.	
Applicant Address	Room 601A16, Enterprise Building, Hunan University Science Park, No.186, Guyuan Road, High-tech Zone Changsha City, Hunan Province, P.R. China.	
Manufacturer	Changsha Sonicake Technology Co., Ltd.	
Manufacturer Address	Room 1601, Building 1, No.20 Qingshan Road, Dongfanghong Street, Xiangjiang New Area, Hunan, China	
Factory	ZHUHAI BOINAUDIO TECHNOLOGY Co., Ltd.	
Factory Address	2/F, Building 2(Phase 2 Factory Building), No. 321, Pingbei 1st Road, Nanping, Xiangzhou District, Zhuhai City, Guangdong Province, China.	
Product description		
Product name	Wireless Audio System	
Trademark	Sonicake	
Model name	QWS-20	
Series Model(s)	N/A	
Standards	47 CFR Part 15E	
Test Method	KDB 789033 D02 General UNII Test Procedures New Rules v02r01 ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024	
Testing Information		
Date of test	2026-04-02 to 2026-07-22	
Test result	Pass	
Prepared by:	Yanice Xie	
Reviewed by:	David Lee	
Approved by:	Lewis Lian	

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1 General Description

1.1 Description of the EUT

Product name:	Wireless Audio System
Model name:	QWS-20
Series Model(s):	N/A
Model difference:	N/A
Electrical rating:	TX Input:DC 5V 60mA TX battery: DC 3.7V 500mAh
Accessories:	Cable: USB-A to USB-C cable of type 1 to 2 :0.3 m
Hardware version:	V1.00
Software version:	V1.5.18
Test sample(s) number:	MTi260123003-01-R001
RF specification	
Operating frequency range:	5728MHz-5848MHz
Channel number:	121
Modulation type:	GFSK
Antenna(s) type:	Ceramic Antenna
Antenna(s) gain:	-2.5 dBi

1.2 Description of test modes

No.	Emission test modes
Mode1	TX-GFSK

1.2.1 Operation channel list

Test Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
2	5728	33	5759	64	5790	95	5821
3	5729	34	5760	65	5791	96	5822
4	5730	35	5761	66	5792	97	5823
5	5731	36	5762	67	5793	98	5824
6	5732	37	5763	68	5794	99	5825
7	5733	38	5764	69	5795	100	5826
8	5734	39	5765	70	5796	101	5827
9	5735	40	5766	71	5797	102	5828

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10	5736	41	5767	72	5798	103	5829
11	5737	42	5768	73	5799	104	5830
12	5738	43	5769	74	5800	105	5831
13	5739	44	5770	75	5801	106	5832
14	5740	45	5771	76	5802	107	5833
15	5741	46	5772	77	5803	108	5834
16	5742	47	5773	78	5804	109	5835
17	5743	48	5774	79	5805	110	5836
18	5744	49	5775	80	5806	111	5837
19	5745	50	5776	81	5807	112	5838
20	5746	51	5777	82	5808	113	5839
21	5747	52	5778	83	5809	114	5840
22	5748	53	5779	84	5810	115	5841
23	5749	54	5780	85	5811	116	5842
24	5750	55	5781	86	5812	117	5843
25	5751	56	5782	87	5813	118	5844
26	5752	57	5783	88	5814	119	5845
27	5753	58	5784	89	5815	120	5846
28	5754	59	5785	90	5816	121	5847
29	5755	60	5786	91	5817	122	5848
30	5756	61	5787	92	5818	/	/
31	5757	62	5788	93	5819	/	/
32	5758	63	5789	94	5820	/	/

Operation Band:

Lowest Channel (LCH) (MHz)	Middle Channel (MCH) (MHz)	Highest Channel (HCH) (MHz)
5728	5788	5848

Note: The test software provided by manufacturer is used to control EUT for working in engineering mode, that enables selectable channel, and capable of continuous transmitting mode.

Test Software: EUT

For power setting, refer to below table.

Mode	LCH	MCH	HCH
GFSK	defalut	defalut	defalut

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1.3 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH
Atmospheric pressure:	98 kPa ~ 101 kPa

1.4 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Laptop	e485	/	Lenovo
Support cable list			
Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Measurement	Uncertainty
Time	±1 %
Occupied channel bandwidth	±3 %
RF output power, conducted	±1 dB
Power Spectral Density, conducted	±1 dB
Unwanted Emissions, conducted	±1 dB
Radiated spurious emissions (above 1GHz)	±5.3dB
Radiated spurious emissions (9kHz~30MHz)	±4.3dB
Radiated spurious emissions (30MHz~1GHz)	±4.7dB
Temperature	±1 °C
Humidity	± 5 %

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

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2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Duty Cycle	47 CFR Part 15E		Pass
2	Emission bandwidth and occupied bandwidth	47 CFR Part 15E	47 CFR Part 15.407(e)	Pass
3	Maximum conducted output power	47 CFR Part 15E	47 CFR Part 15.407(a)(3)(i)	Pass
4	Power spectral density	47 CFR Part 15E	47 CFR Part 15.407(a)(3)(i)	Pass
5	Frequency stability	47 CFR Part 15E	47 CFR Part 15.407(g)	Pass
6	Band edge emissions (Conducted)	47 CFR Part 15E	47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
7	Band edge emissions (Radiated)	47 CFR Part 15E	47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
8	Undesirable emission limits (below 1GHz)	47 CFR Part 15E	47 CFR Part 15.407(b)(9)	Pass
9	Undesirable emission limits (above 1GHz)	47 CFR Part 15E	47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass

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3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573
IC Registration No.:	21760
CABID:	CN0093

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4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
Frequency stability Band edge emissions (Conducted) Duty Cycle Emission bandwidth and occupied bandwidth Maximum conducted output power Power spectral density						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2026-03-09	2027-03-08
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2026-03-09	2027-03-08
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2026-03-10	2027-03-09
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2026-03-10	2027-03-09
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2026-03-09	2027-03-08
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2026-03-11	2027-03-10
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2026-03-11	2027-03-10
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2026-03-10	2027-03-09
9	DC Power Supply	Agilent	E3632A	MY40027695	2026-03-09	2027-03-08
10	RF Test System	Tonscend	JS1120-3 Test System	V3.6.21	/	/
Band edge emissions (Radiated) Undesirable emission limits (above 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2026-03-10	2027-03-09
2	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120 D	2278	2025-05-27	2027-05-26
3	Amplifier	Agilent	8449B	3008A01120	2026-03-10	2027-03-09
4	MXA signal analyzer	Agilent	N9020A	MY54440859	2026-03-10	2027-03-09
5	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2026-03-10	2027-03-09
6	Horn antenna	Schwarzbeck	BBHA 9170	00987	2025-05-27	2027-05-26
7	Pre-amplifier	Space-Dtronics	EWLAN18 40G	210405001	2026-03-11	2027-03-10
8	EMI Test Software	Farad	EZ-EMC	Ver. EMEC-3A1	/	/
9	Band-stop filter	Tonscend	JS0806-F	MTi-E223	2026-03-14	2027-03-13
Undesirable emission limits (below 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2026-03-10	2027-03-09

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No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2025-05-23	2027-05-22
3	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2026-03-08	2028-03-07
4	Amplifier	Hewlett-Packard	8447F	3113A06184	2026-03-10	2027-03-09
5	EMI Test Software	Farad	EZ-EMC	Ver. EMEC- 3A1	/	/

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5 Radio Spectrum Matter Test Results (RF)

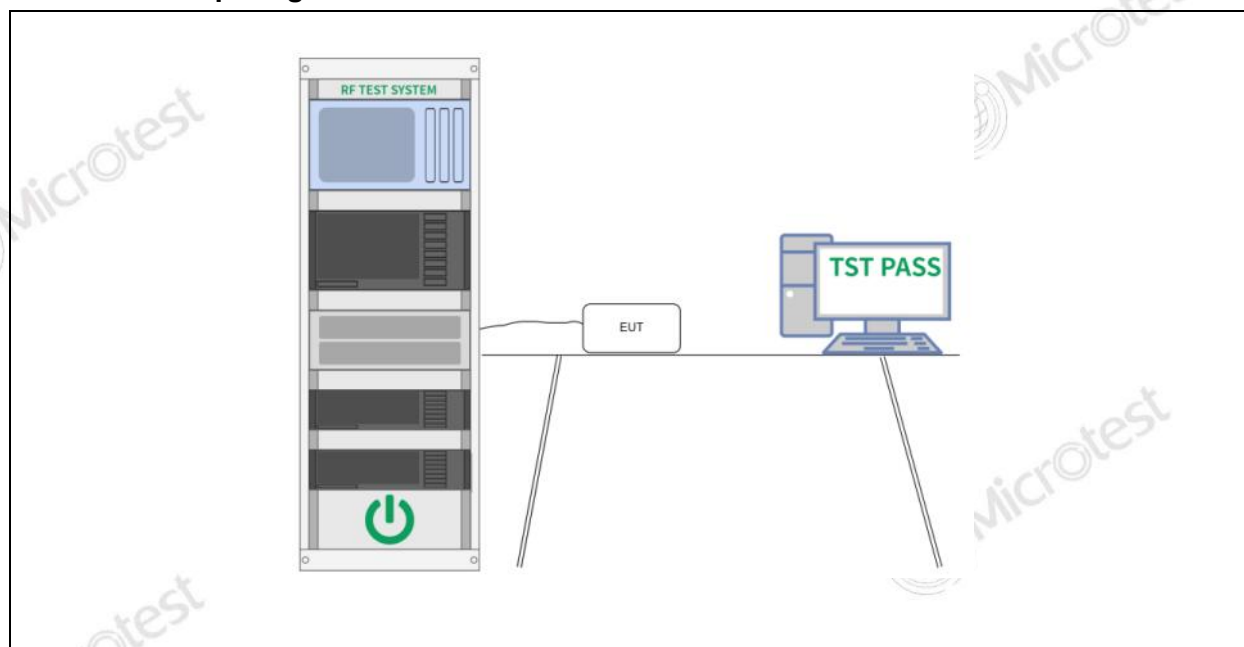
5.1 Duty Cycle

Test Requirement:	All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.
Test Limit:	No limits, only for report use.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 12.2 (b)
Procedure:	i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW $\geq$ EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW $\geq$ RBW. iv) Set detector = peak. v) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.

5.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.1.2 Test Setup Diagram:



5.1.3 Test Data:

Please Refer to Appendix for Details.

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5.2 Emission bandwidth and occupied bandwidth

Test Requirement:	U-NII 3, U-NII 4: 47 CFR Part 15.407(e)
Test Limit:	U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 6.9 & 12.5 KDB 789033 D02, Clause C.2
Procedure:	Occupied bandwidth: a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. d) Step a) through step c) might require iteration to adjust within the specified range. e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used. f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies. h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

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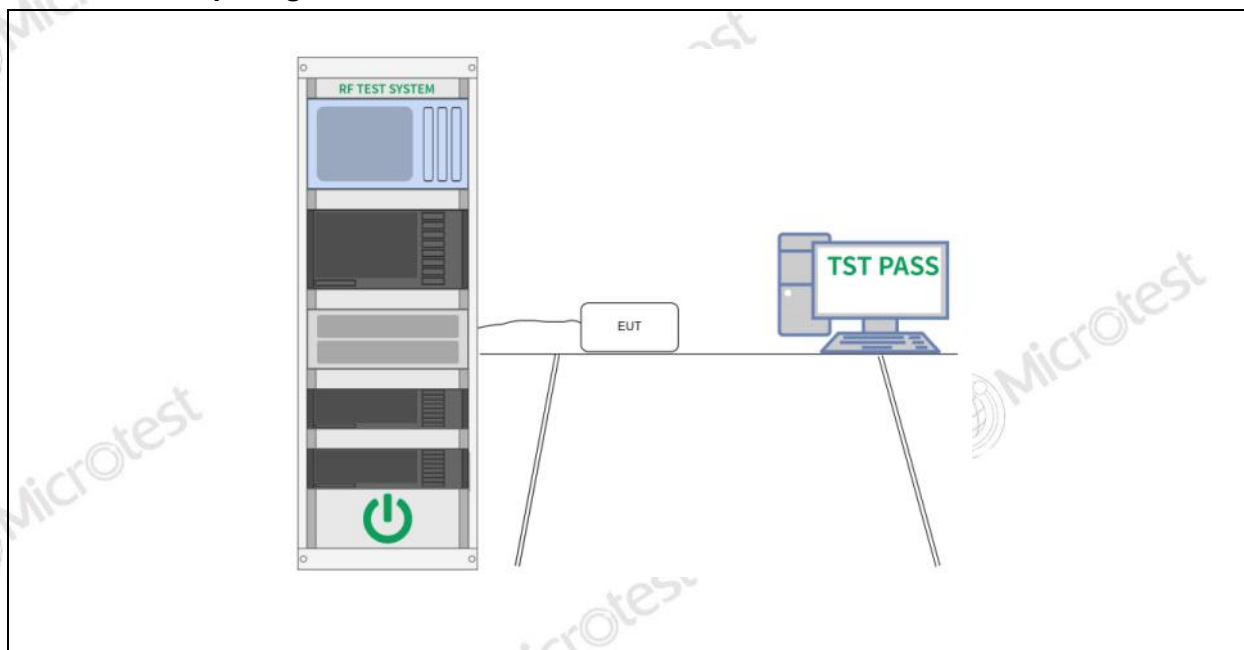
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	6 dB emission bandwidth: a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
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5.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.2.2 Test Setup Diagram:



5.2.3 Test Data:

Please Refer to Appendix for Details.

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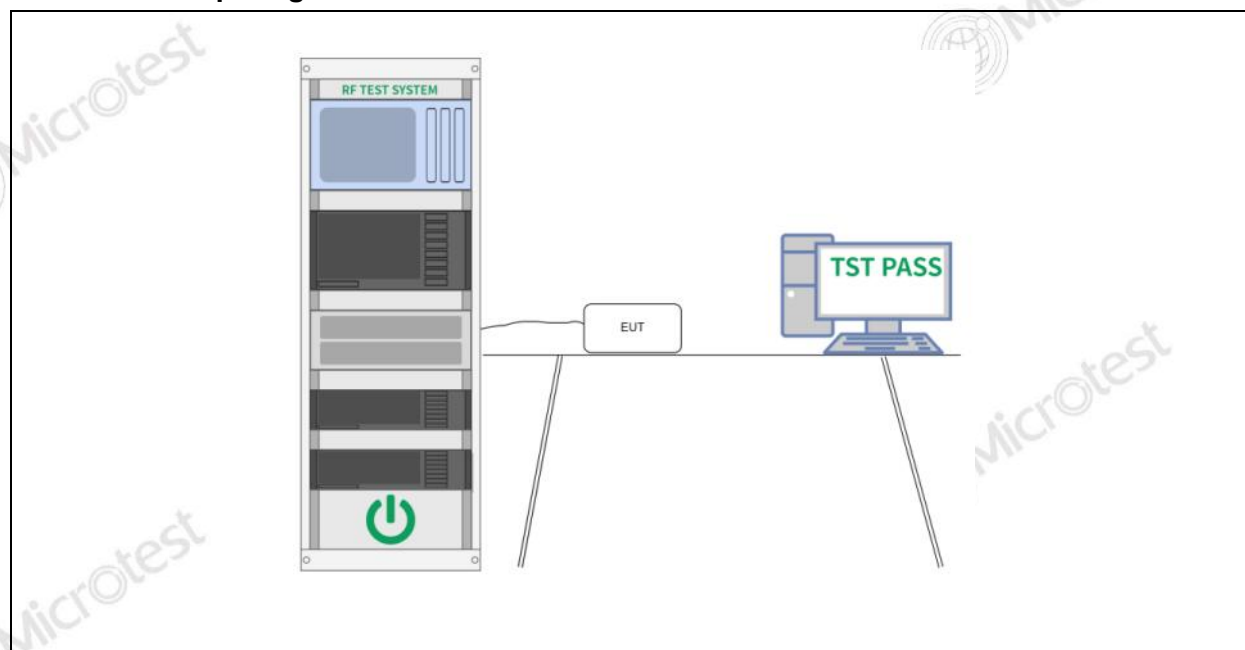
5.3 Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(3)(i)
Test Limit:	For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.4
Procedure:	Refer to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 12.4

5.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.3.2 Test Setup Diagram:



5.3.3 Test Data:

Please Refer to Appendix for Details.

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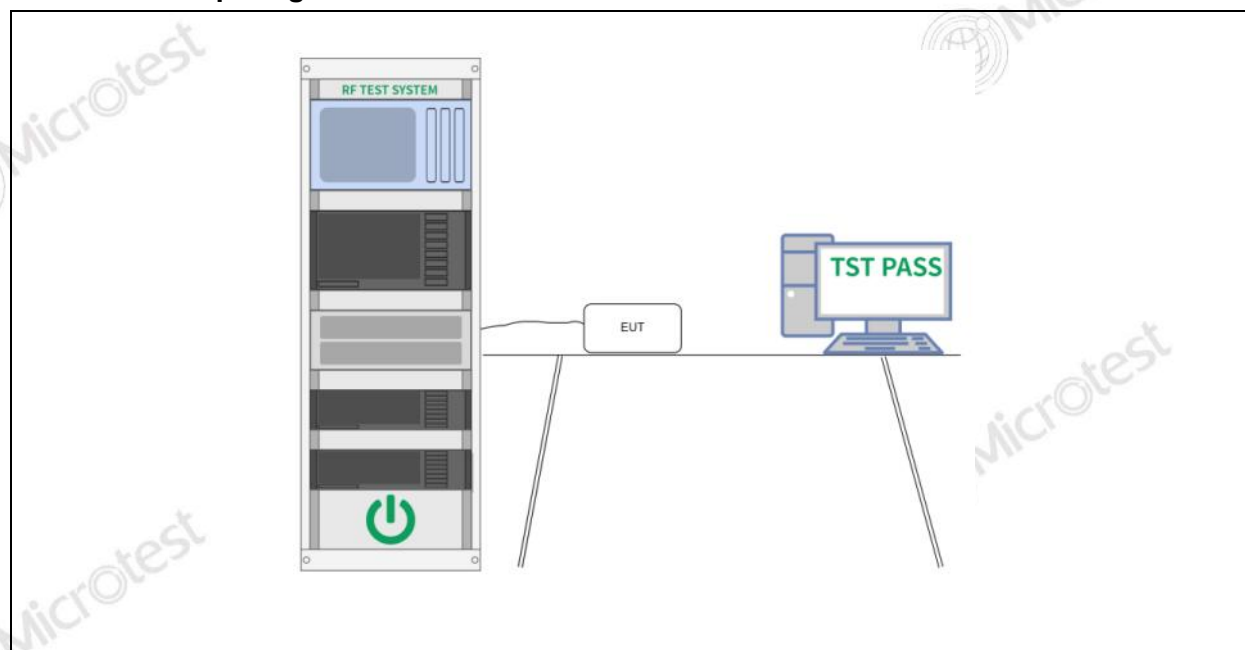
5.4 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(3)(i)
Test Limit:	For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.6
Procedure:	Refer to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.6

5.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.4.2 Test Setup Diagram:



5.4.3 Test Data:

Please Refer to Appendix for Details.

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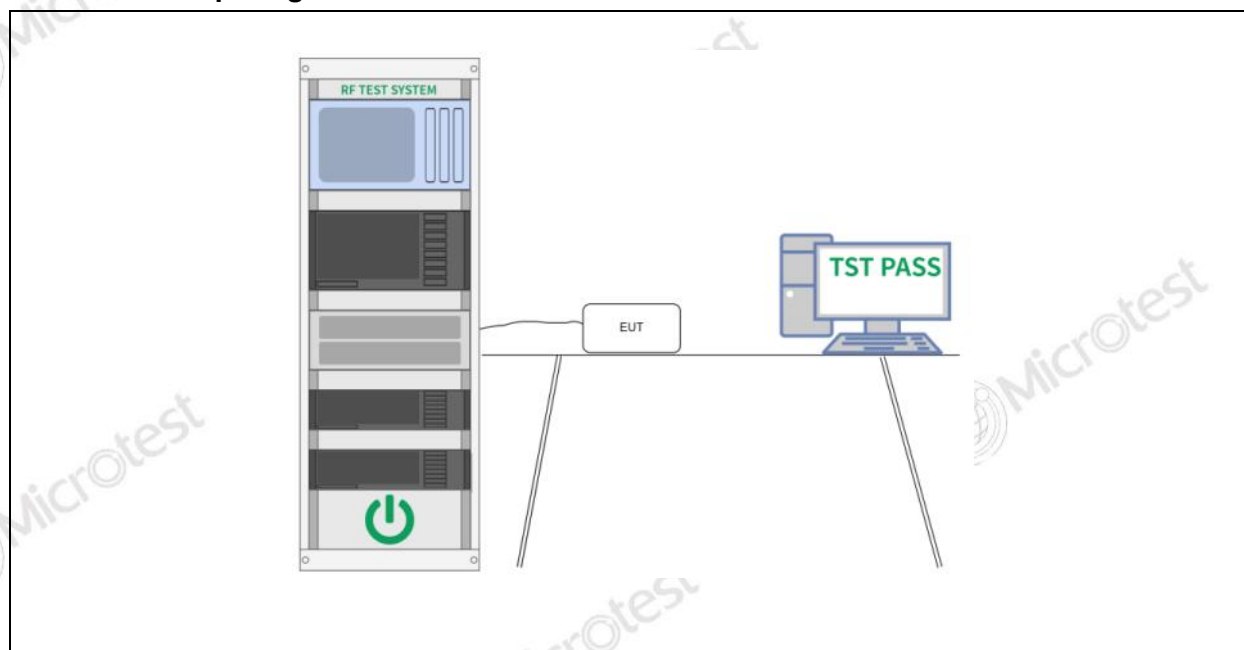
5.5 Frequency stability

Test Requirement:	47 CFR Part 15.407(g)
Test Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 6.8
Procedure:	Refer to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.8

5.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.6 °C	Humidity:	58 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.5.2 Test Setup Diagram:



5.5.3 Test Data:

Please Refer to Appendix for Details.

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5.6 Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. <table> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>¹ 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(²)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </table> ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	(²)	13.36-13.41			
MHz	MHz	MHz	GHz																																																																								
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15																																																																								
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12.57675-12.57725	322-335.4	3600-4400	(²)																																																																								
13.36-13.41																																																																											

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	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
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.		
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.7.4, 12.7.6, 12.7.7		
Procedure:	Above 1GHz: 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 18GHz to 40GHz, the disturbance above 18GHz was very low.		

TEST REPORT

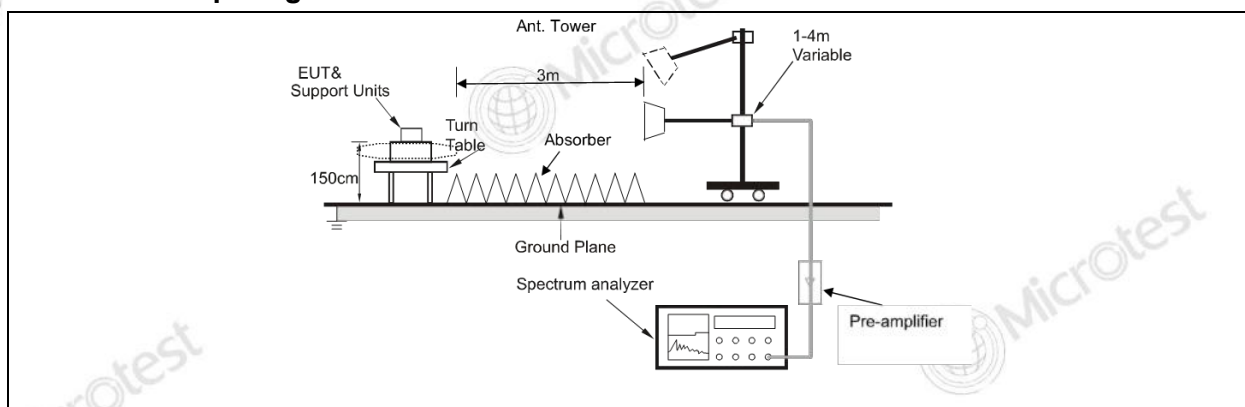
Report No.: MTi260123003-0107E1

	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. 4. The disturbance above 18GHz were 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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5.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	45 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.6.2 Test Setup Diagram:

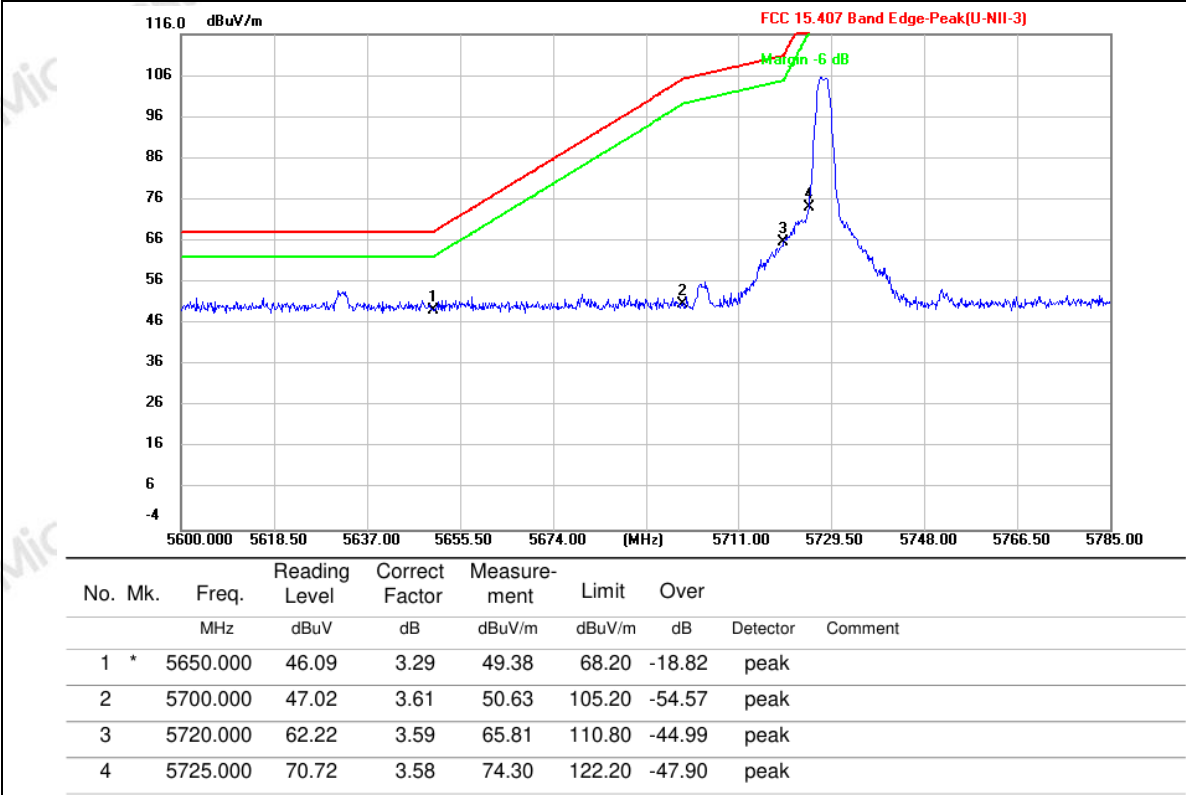


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5.6.3 Test Data:

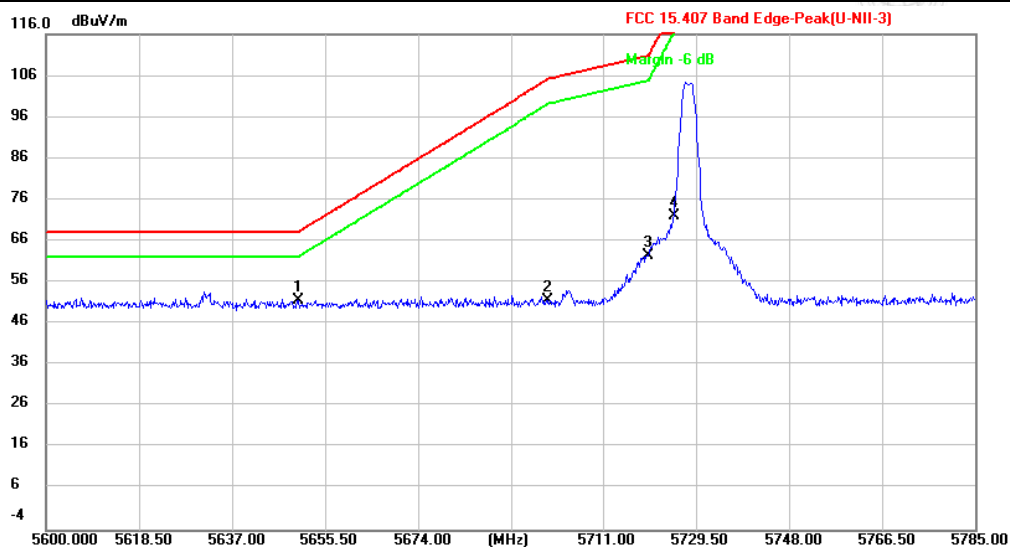
Mode1 / Polarization: Horizontal / CH: L



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Report No.: MTi260123003-0107E1

Mode1 / Polarization: Vertical / CH: L

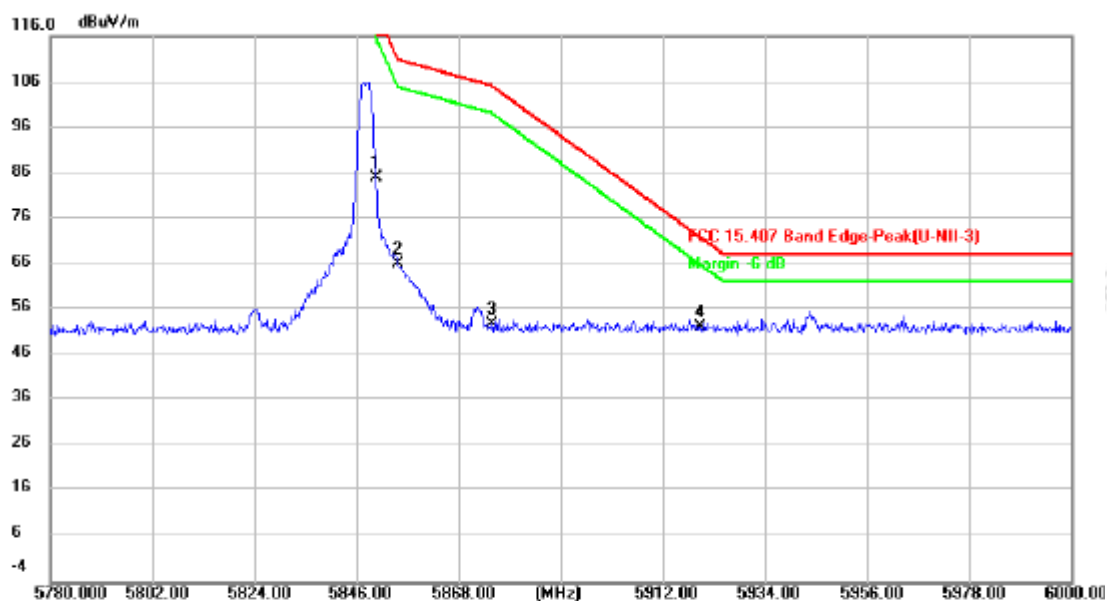


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	5650.000	48.32	3.29	51.61	68.20	-16.59	peak	
2		5700.000	48.19	3.61	51.80	105.20	-53.40	peak	
3		5720.000	58.96	3.59	62.55	110.80	-48.25	peak	
4		5725.000	68.56	3.58	72.14	122.20	-50.06	peak	

TEST REPORT

Report No.: MTi260123003-0107E1

Mode1 / Polarization: Horizontal / CH: H

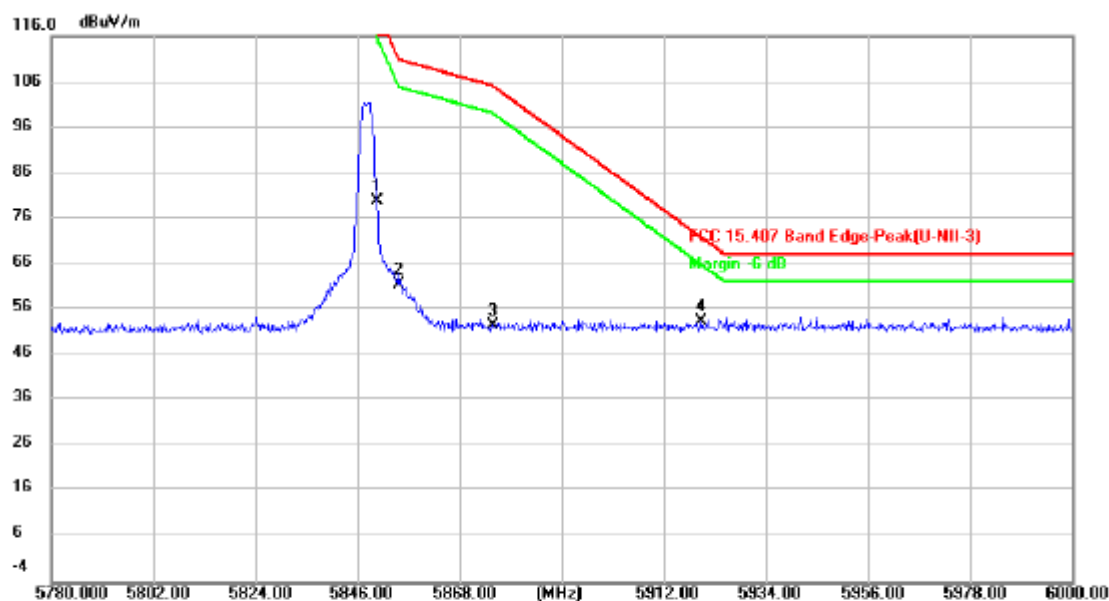


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5850.000	81.06	4.00	85.06	122.20	-37.14	peak	
2		5855.000	62.03	4.01	66.04	110.80	-44.76	peak	
3		5875.000	48.77	4.11	52.88	105.20	-52.32	peak	
4	*	5920.000	47.85	4.32	52.17	71.90	-19.73	peak	

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Mode1 / Polarization: Vertical / CH: H



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	5850.000	75.84	4.00	79.84	122.20	-42.36	peak	
2	5855.000	57.60	4.01	61.61	110.80	-49.19	peak	
3	5875.000	48.46	4.11	52.57	105.20	-52.63	peak	
4 *	5920.000	49.04	4.32	53.36	71.90	-18.54	peak	

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Report No.: MTi260123003-0107E1

5.7 Undesirable emission limits (below 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(9)																									
Test Limit:	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: <table border="1"> <thead> <tr> <th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr> </thead> <tbody> <tr> <td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr> <tr> <td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr> <tr> <td>1.705-30.0</td><td>30</td><td>30</td></tr> <tr> <td>30-88</td><td>100 **</td><td>3</td></tr> <tr> <td>88-216</td><td>150 **</td><td>3</td></tr> <tr> <td>216-960</td><td>200 **</td><td>3</td></tr> <tr> <td>Above 960</td><td>500</td><td>3</td></tr> </tbody> </table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.		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
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																								
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.7.4, 12.7.5																									
Procedure:	Below 1GHz: 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.																									

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	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. Above 1GHz: 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 18GHz to 40GHz, 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
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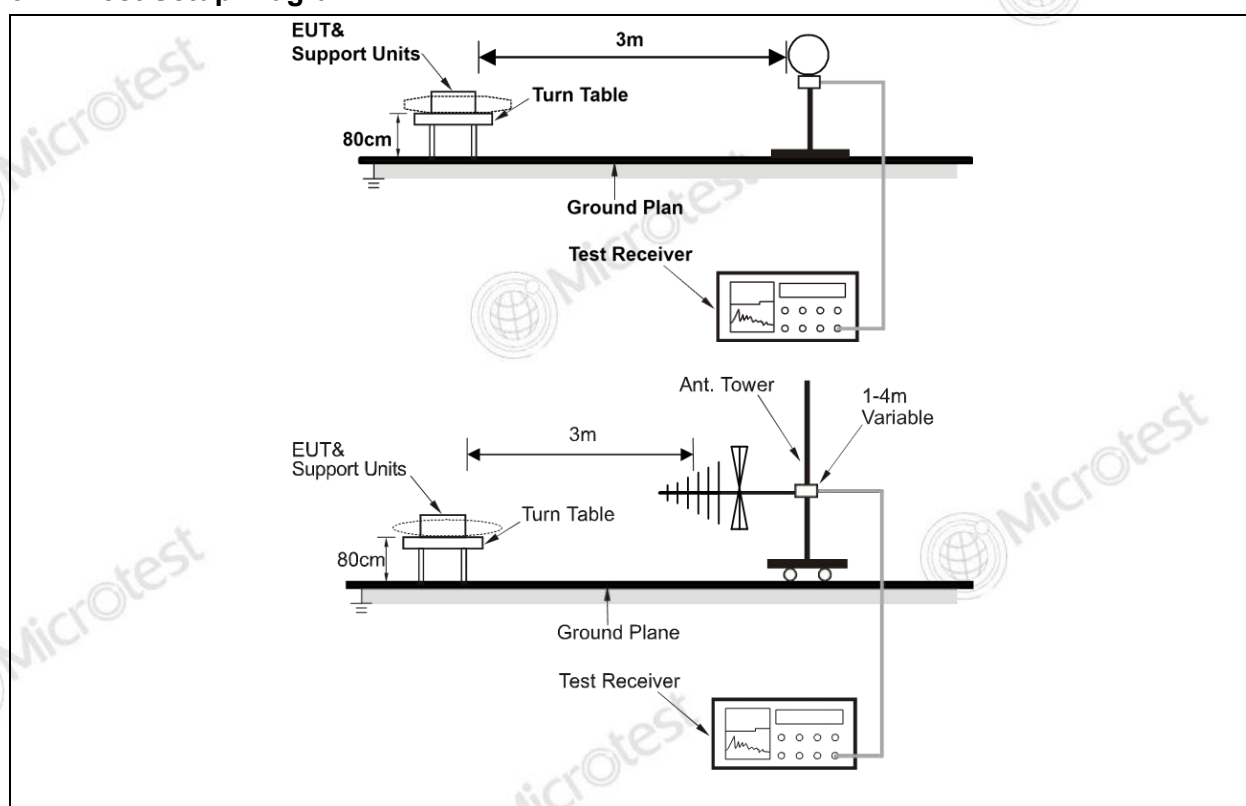
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	emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were 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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5.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	45 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.7.2 Test Setup Diagram:

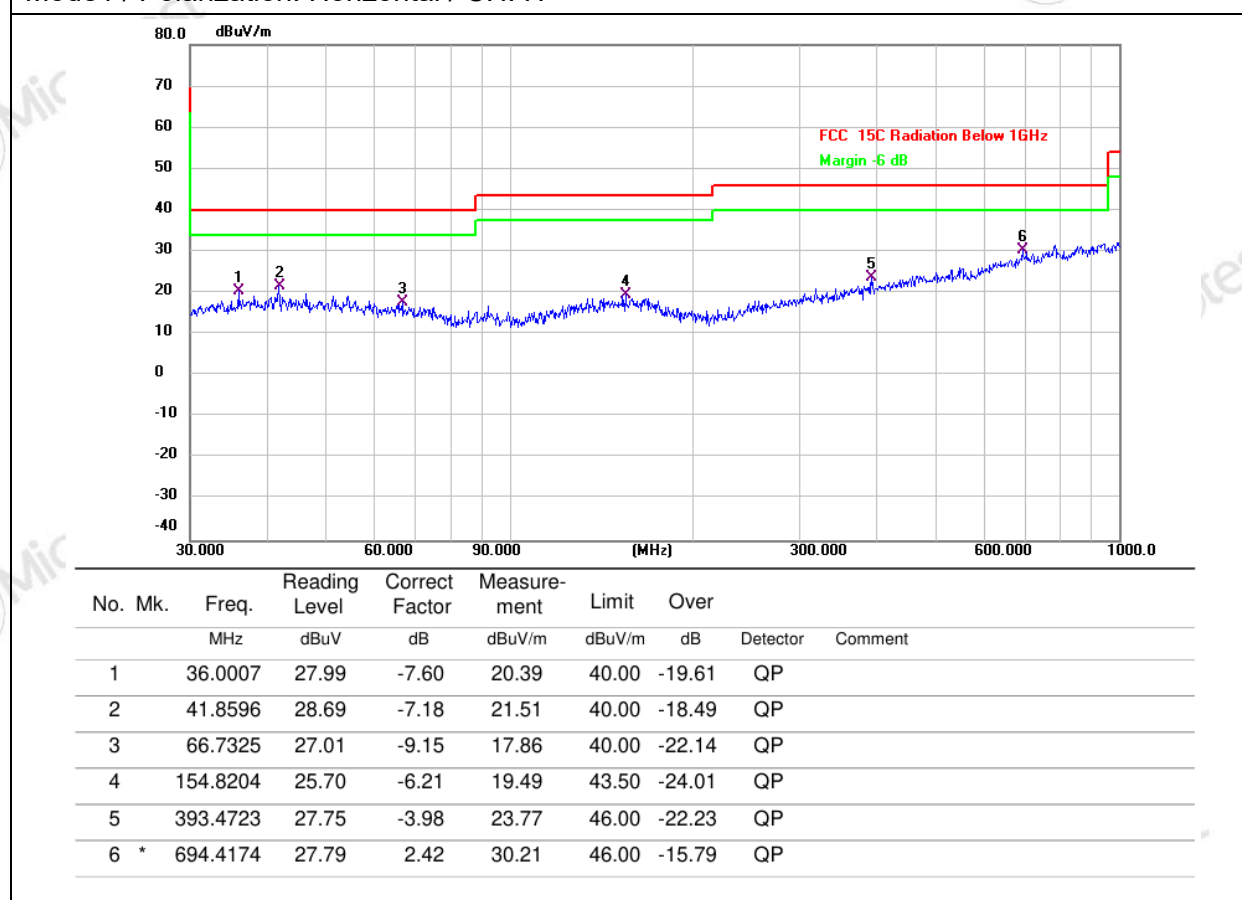


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5.7.3 Test Data:

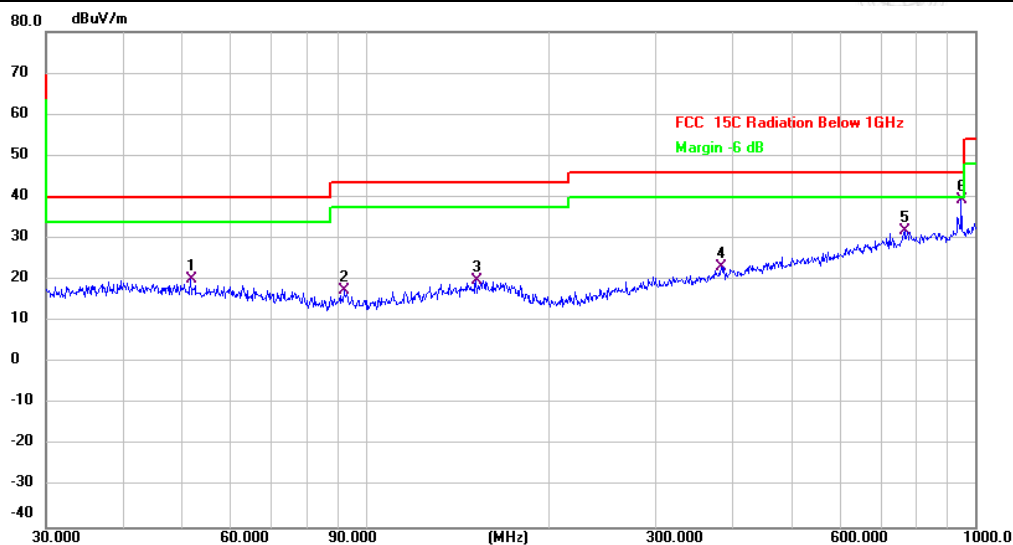
Mode1 / Polarization: Horizontal / CH: H



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Report No.: MTi260123003-0107E1

Mode1 / Polarization: Vertical / CH: H



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	51.6616	27.87	-7.74	20.13	40.00	-19.87	QP	
2	92.1388	28.95	-11.60	17.35	43.50	-26.15	QP	
3	151.5972	26.24	-6.46	19.78	43.50	-23.72	QP	
4	383.9318	27.51	-4.28	23.23	46.00	-22.77	QP	
5	768.7481	28.30	3.55	31.85	46.00	-14.15	QP	
6 *	948.7610	33.56	5.87	39.43	46.00	-6.57	QP	

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Report No.: MTi260123003-0107E1

5.8 Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>¹ 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(²)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	(²)	13.36-13.41			
MHz	MHz	MHz	GHz																																																																								
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15																																																																								
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46																																																																								
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6.215-6.218	74.8-75.2	1660-1710	10.6-12.7																																																																								
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4																																																																								
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12.29-12.293	167.72-173.2	3332-3339	31.2-31.8																																																																								
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5																																																																								
12.57675-12.57725	322-335.4	3600-4400	(²)																																																																								
13.36-13.41																																																																											

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	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
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.		
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 12.7.4, 12.7.6, 12.7.7		
Procedure:	Above 1GHz: 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 18GHz to 40GHz, the disturbance above 18GHz was very low.		

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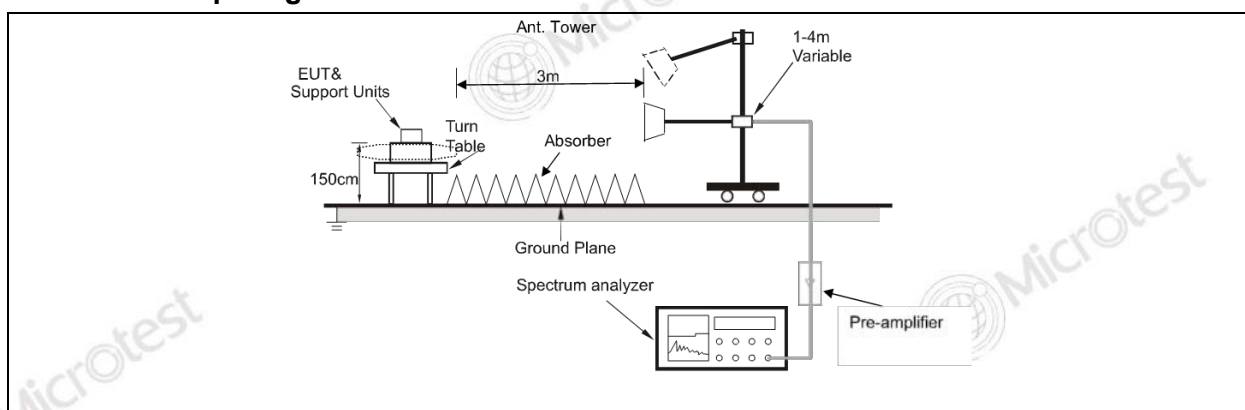
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	The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be 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. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
--	---

5.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	45 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

5.8.2 Test Setup Diagram:

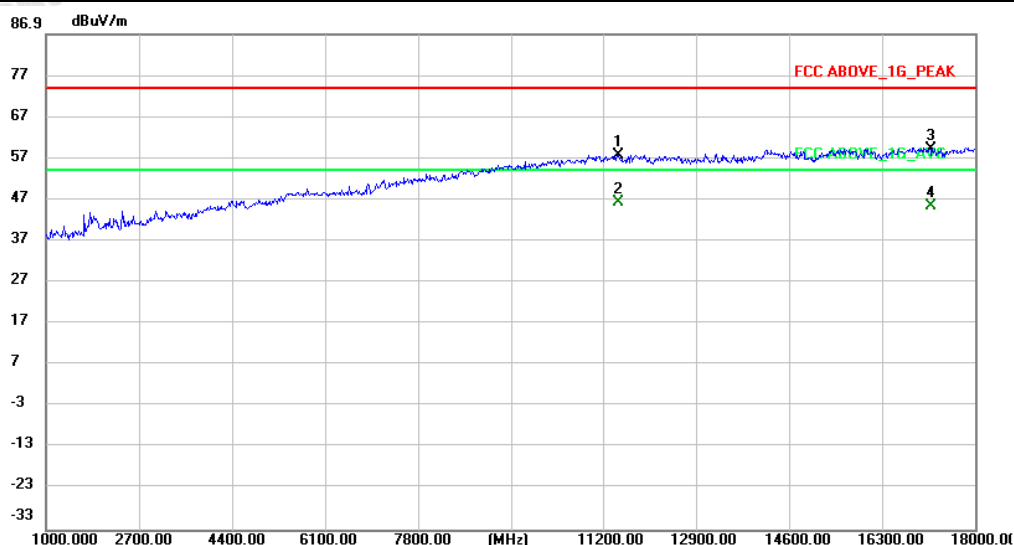


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5.8.3 Test Data:

Mode1 / Polarization: Horizontal / CH: L

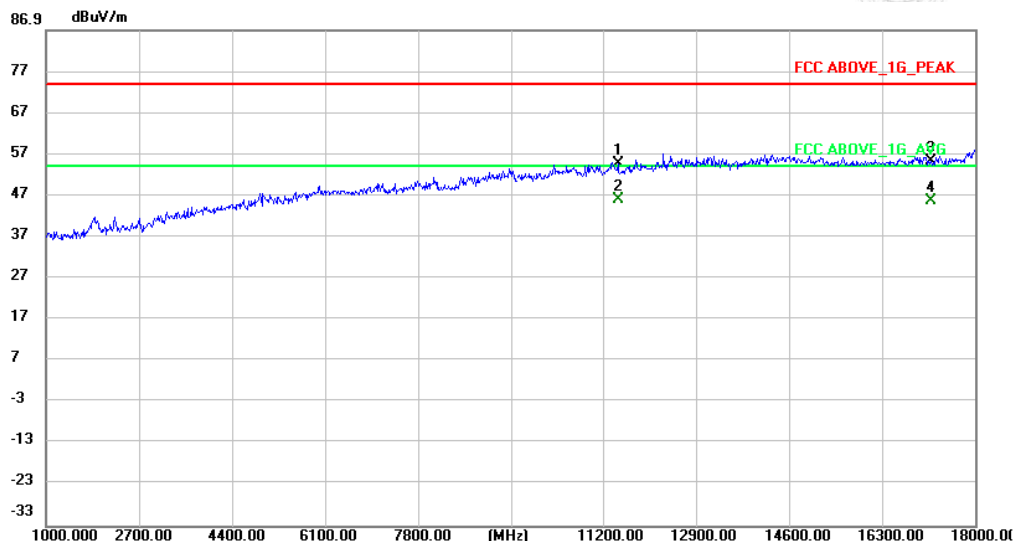


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	11456.000	45.69	11.94	57.63	74.00	-16.37	peak	
2 *	11456.000	34.31	11.94	46.25	54.00	-7.75	AVG	
3	17184.000	45.92	13.09	59.01	74.00	-14.99	peak	
4	17184.000	32.13	13.09	45.22	54.00	-8.78	AVG	

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Mode1 / Polarization: Vertical / CH: L

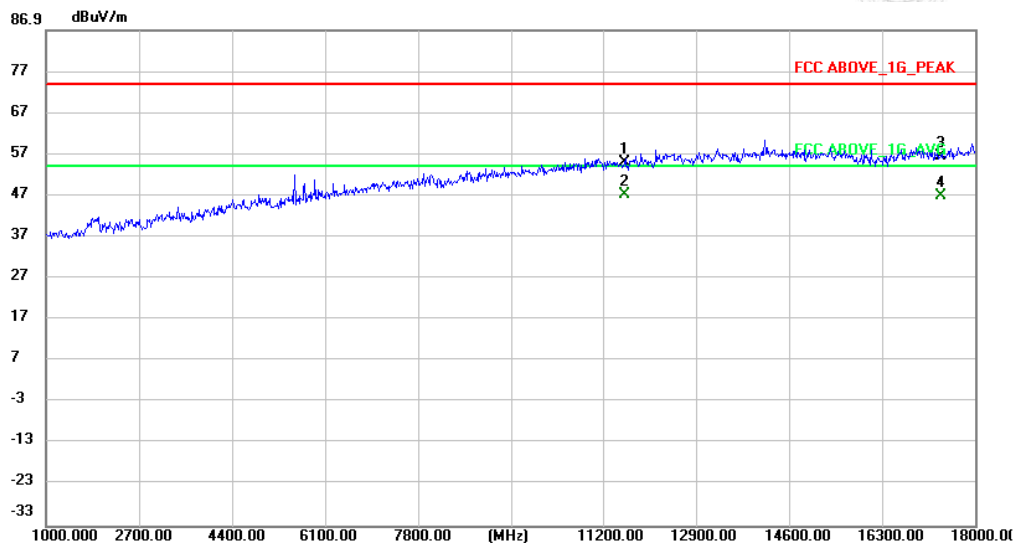


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		11456.000	42.61	11.94	54.55	74.00	-19.45	peak
2	*	11456.000	34.07	11.94	46.01	54.00	-7.99	AVG
3		17184.000	42.30	13.09	55.39	74.00	-18.61	peak
4		17184.000	32.69	13.09	45.78	54.00	-8.22	AVG

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Mode1 / Polarization: Horizontal / CH: M

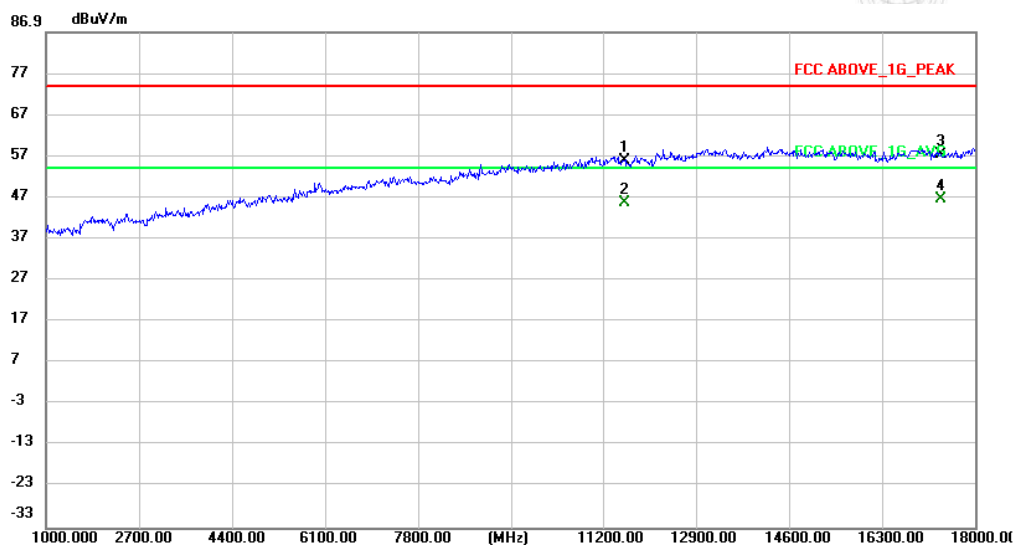


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		11576.000	43.29	11.56	54.85	74.00	-19.15	peak	
2	*	11576.000	35.46	11.56	47.02	54.00	-6.98	AVG	
3		17364.000	43.46	13.04	56.50	74.00	-17.50	peak	
4		17364.000	33.86	13.04	46.90	54.00	-7.10	AVG	

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Mode1 / Polarization: Vertical / CH: M

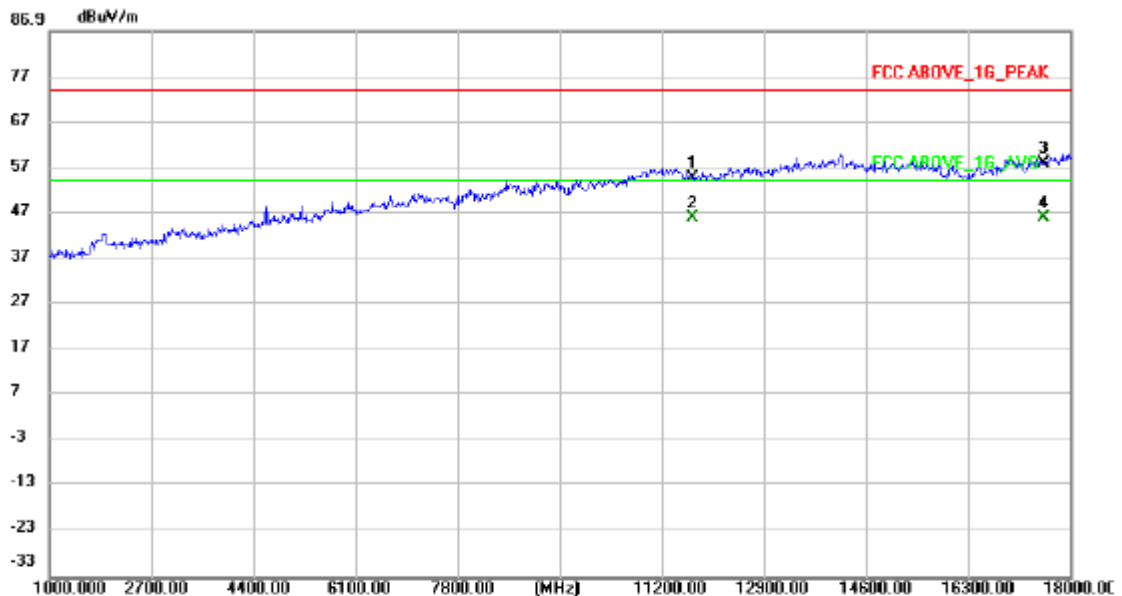


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit		Detector	Comment
		MHz	Level	Factor	ment	dBuV/m	dB		
			dBuV	dB	dBuV/m	dBuV/m	dB		
1		11576.000	44.41	11.56	55.97	74.00	-18.03	peak	
2		11576.000	34.15	11.56	45.71	54.00	-8.29	AVG	
3		17364.000	44.44	13.04	57.48	74.00	-16.52	peak	
4	*	17364.000	33.66	13.04	46.70	54.00	-7.30	AVG	

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Mode1 / Polarization: Horizontal / CH: H

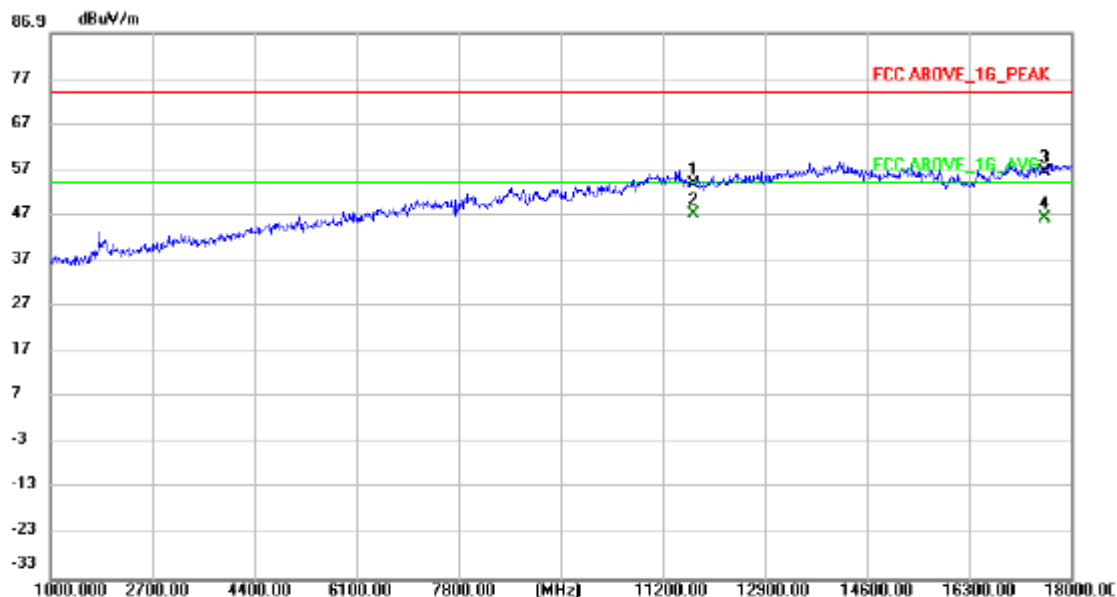


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment				
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11696.000	43.21	11.38	54.59	74.00	-19.41	peak	
2		11696.000	34.50	11.38	45.88	54.00	-8.12	AVG	
3		17544.000	44.70	13.37	58.07	74.00	-15.93	peak	
4	*	17544.000	32.65	13.37	46.02	54.00	-7.98	AVG	

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Mode1 / Polarization: Vertical / CH: H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		11696.000	42.30	11.38	53.68	74.00	-20.32	peak	
2	*	11696.000	35.82	11.38	47.20	54.00	-6.80	AVG	
3		17544.000	43.10	13.37	56.47	74.00	-17.53	peak	
4		17544.000	32.91	13.37	46.28	54.00	-7.72	AVG	

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Photographs of the test setup

Refer to Appendix - Test Setup Photos

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Photographs of the EUT

Refer to Appendix - EUT Photos

Appendix

TEST REPORT

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Appendix A1: Occupied channel bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
GFSK	Ant1	5728	2.5107	5726.7749	5729.2856
		5788	2.5198	5786.7670	5789.2868
		5848	2.5132	5846.7663	5849.2795

TEST REPORT

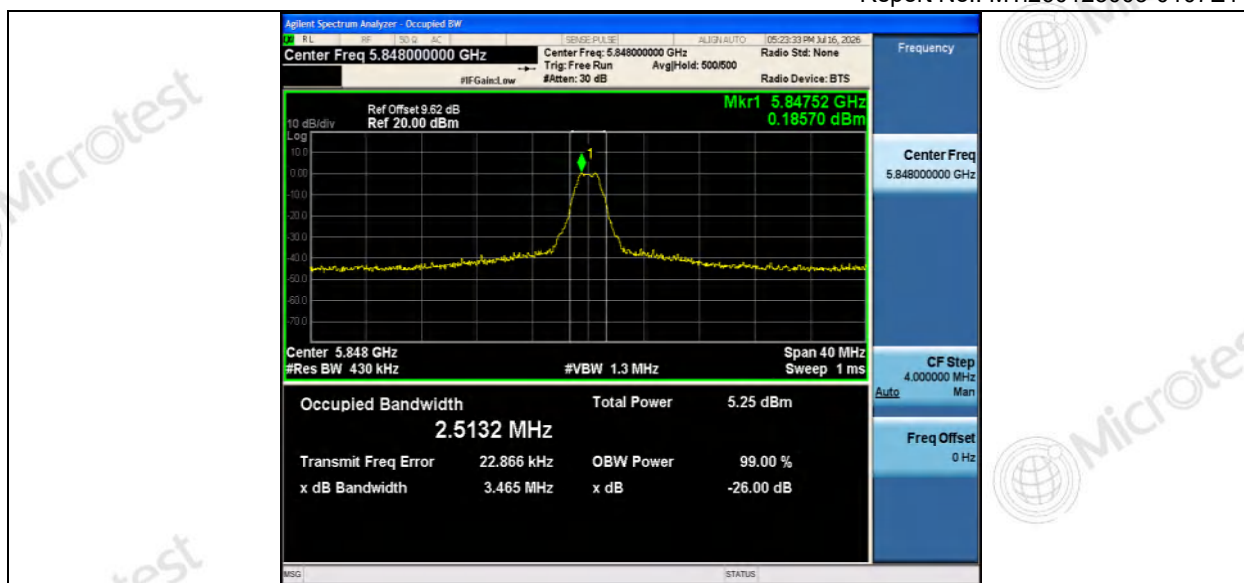
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Test Graphs



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Appendix A2: Min emission bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
GFSK	Ant1	5728	1.160	5727.400	5728.560	0.5	PASS
		5788	1.240	5787.360	5788.600	0.5	PASS
		5848	1.160	5847.400	5848.560	0.5	PASS

TEST REPORT

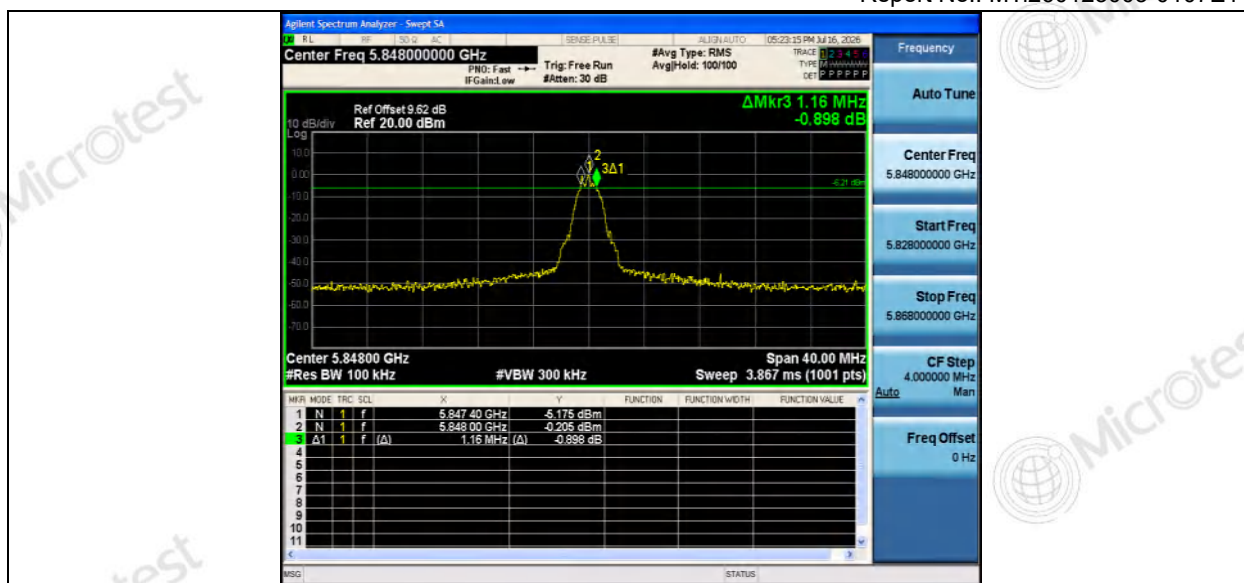
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Test Graphs



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Appendix B: Duty Cycle

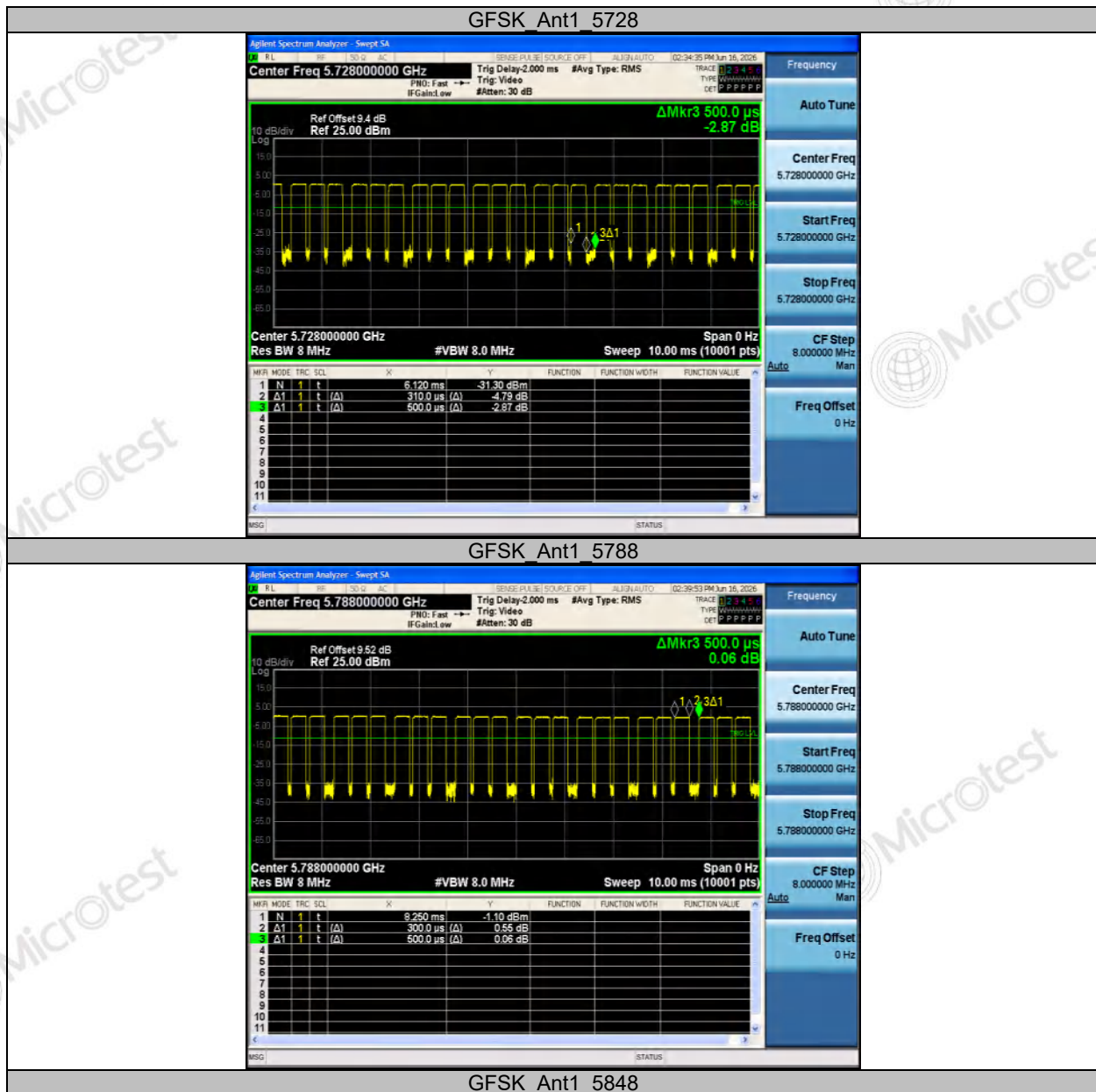
Test Result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
GFSK	Ant1	5728	0.31	0.50	62.00
		5788	0.30	0.50	60.00
		5848	0.31	0.50	62.00

TEST REPORT

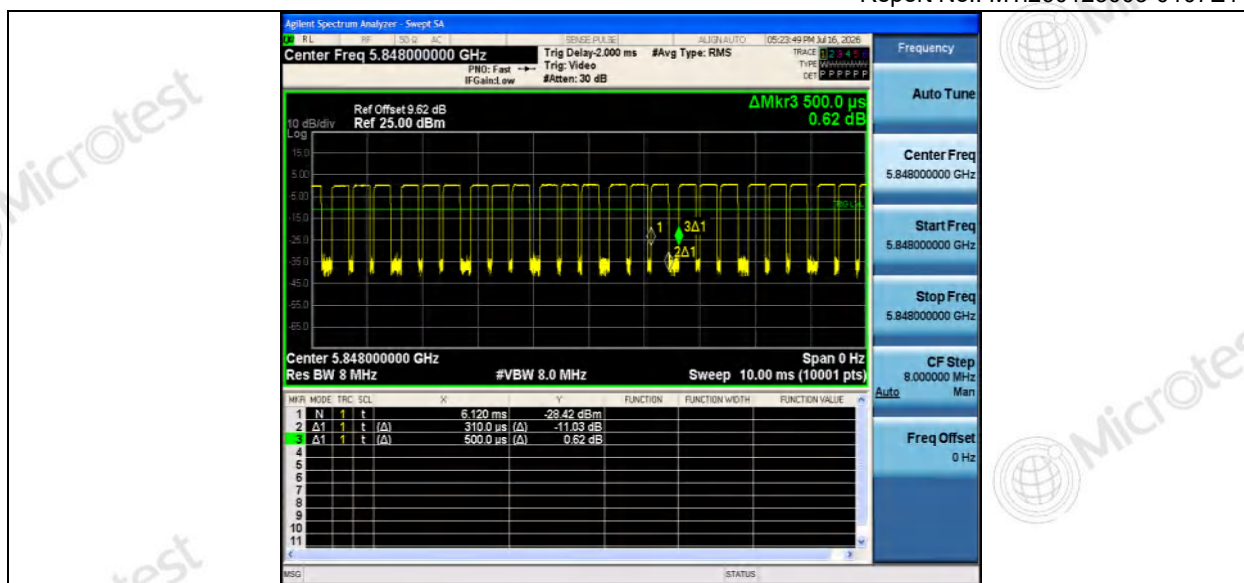
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Test Graphs



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Appendix C: Maximum conducted output power

Test Result Channel Power

Test Mode	Antenna	Frequency [MHz]	Channel Power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Verdict
GFSK	Ant1	5728	-2.52	62.00	2.08	-0.44	≤30.00	PASS
		5788	-3.13	60.00	2.22	-0.91	≤30.00	PASS
		5848	-2.42	62.00	2.08	-0.20	≤30.00	PASS

Note: The Duty Cycle Factor is compensated in the graph.

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Test Graphs



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Appendix D: Maximum power spectral density

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/300kHz]	RBW Factor	Result [dBm/500kHz]	Limit [dBm/500kHz]	Verdict
GFSK	Ant1	5728	-3.58	2.22	-1.36	≤30.00	PASS
		5788	-5.21	2.22	-2.99	≤30.00	PASS
		5848	-2.91	2.22	-0.69	≤30.00	PASS

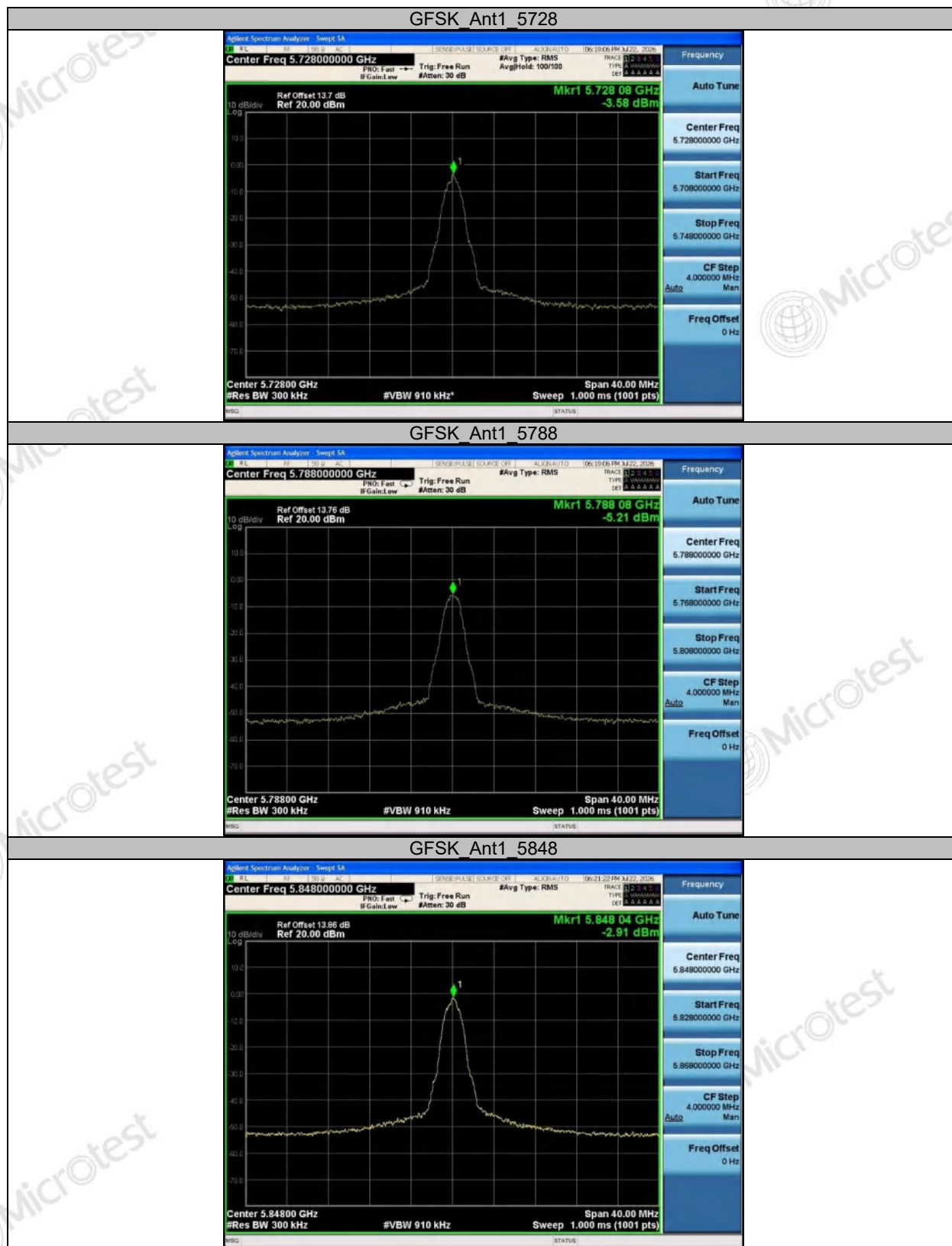
Note:

- 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
- 2.RBW Factor= $10 \cdot \log(500/300) = 2.22$
Result [dBm/500kHz]= Result [dBm/300kHz]+ RBW Factor.

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Test Graphs



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Appendix G: Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GFSK	Ant1	5728	NV	NT	-20000.00	-3.491620	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	40000.00	6.983240	20	PASS
		5788	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-80000.00	-13.821700	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5848	NV	NT	-80000.00	-13.679891	20	PASS
			LV	NT	-40000.00	-6.839945	20	PASS
			HV	NT	20000.00	3.419973	20	PASS

Temperature								
TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GFSK	Ant1	5728	NV	-30	80000.00	13.966480	20	PASS
			NV	-20	-20000.00	-3.491620	20	PASS
			NV	-10	-20000.00	-3.491620	20	PASS
			NV	0	-20000.00	-3.491620	20	PASS
			NV	10	-40000.00	-6.983240	20	PASS
			NV	20	20000.00	3.491620	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-20000.00	-3.491620	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5788	NV	-30	0.00	0.000000	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-80000.00	-13.821700	20	PASS
			NV	0	-40000.00	-6.910850	20	PASS
			NV	10	-40000.00	-6.910850	20	PASS
			NV	20	40000.00	6.910850	20	PASS
			NV	30	40000.00	6.910850	20	PASS
			NV	40	80000.00	13.821700	20	PASS
			NV	50	-20000.00	-3.455425	20	PASS
		5848	NV	-30	0.00	0.000000	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-40000.00	-6.839945	20	PASS
			NV	0	-20000.00	-3.419973	20	PASS
			NV	10	-20000.00	-3.419973	20	PASS
			NV	20	-20000.00	-3.419973	20	PASS
			NV	30	-40000.00	-6.839945	20	PASS
			NV	40	20000.00	3.419973	20	PASS
			NV	50	-20000.00	-3.419973	20	PASS

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Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

***** END OF REPORT *****