

Test Report

Report No.: MTi230609007-04E2

Date of issue: 2023-06-29

Applicant: Shenzhen Lingdu Auto Electronics Co.,Ltd.

Product: Dashcam

Model(s): M550 Pro , M550,M570,M571,M572,M560,C34

FCC ID: 2ASWV-M550PRO

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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Test Result Certification	
Applicant:	Shenzhen Lingdu Auto Electronics Co.,Ltd.
Address:	1807-1808 JinHua Building, No.468 Minzhi Avenue, Longhua District,
Manufacturer:	Dongguan Lingdu Electronics Technology Co., Ltd.
Address:	No.1, Longcheng Road, Xiekeng Village Committee, Qingxi Town, Dongguan, Guangdong, China.
Product description	
Product name:	Dashcam
Trade mark:	N/A
Model name:	M550 Pro
Series Model:	M550,M570,M571,M572,M560,C34
Standards:	FCC 47 CFR Part 15.407
Test method:	ANSI C63.10-2013 KDB 789033 D02 v02r01
Date of Test	
Date of test:	2023-06-20 to 2023-06-25
Test result:	Pass

Test Engineer	:	<i>Letter. Lan.</i>
		(Letter)
Reviewed By	:	<i>Leon Chen</i>
		(Leon)
Approved By	:	<i>Tom Xue</i>
		(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	Dashcam
Model name:	M550 Pro
Series Model:	M550,M570,M571,M572,M560,C34
Model difference:	All the models are the same circuit and module, except the model name and appearance, antenna position.
Accessories:	Cable: 1.Car charger cable(3.5m) 2. Video cable(6m) Car charger manufacturer: XINHUICHEN, OUTPUT 5V 2.5A,Input 12V-24V
Electrical rating:	Input: 5V2.5A
Hardware version:	V1.0
Software version:	2023-4-17_1.0.0
Test sample(s) number:	MTi230609007-04S1001
RF specification	
Operating frequency range:	802.11a: U-NII Band 1: 5180MHz to 5240MHz;
Channel number:	802.11a: U-NII Band 1: 4;
Modulation type:	802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM);
Antenna(s) type:	FPC antenna
Antenna(s) gain:	3 dBi

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode1	802.11a mode

1.1.1 Operation channel list

For U-NII-1 band:					
20 MHz bandwidth		40 MHz bandwidth		80 MHz bandwidth	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	--	--	--	--
40	5200	--	--	--	--
44	5220	--	--	--	--
48	5240	--	--	--	--

Test Software:	FCC ASSIST 1.1.5
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For U-NII-1 band:			
802.11a			
Channel	Power setting		
36	65		
40	63		
48	63		

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
Accumulator	6-QW-45(370)-L	/	Camel Group Co., Ltd.
Support cable list			
Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Parameter	Measurement uncertainty
AC power line conducted emission (9 kHz~30 MHz)	±2.5 dB
Occupied Bandwidth	±3 %
Conducted RF output power	±0.16 dB
Conducted spurious emissions	±0.21 dB
Radiated emission (9 kHz ~ 30 MHz)	±4.0 dB
Radiated emission (30 MHz~1 GHz)	±4.2 dB
Radiated emission (above 1 GHz)	±4.3 dB

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

2 Summary of Test Result

No.	FCC reference	Description of test	Result
1	§15.203 & 15.407	Antenna requirement	Pass
2	§ 15.207	AC power line conducted emissions	Pass
4	§15.407(b)	Radiation Spurious Emissions	Pass
5	§15.407(a)	Emission bandwidth and occupied bandwidth	Pass
6	§15.407(a)	RF output power	Pass
7	§15.407(a)	Power spectral density	Pass
8	§15.407(b)	Conducted Spurious Emission	Pass
9	§15.407(b)	Conducted band edge	Pass
10	§15.407(g)	Frequency Stability	Pass

Notes:

N/A means not applicable.

Note: The device is a DC power supply and does not apply to conducted emissions.

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

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
Duty Cycle						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2023-04-26	2024-04-25
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2023-04-25	2024-04-24
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2023-04-25	2024-04-24
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2023-04-25	2024-04-24
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2023-04-26	2024-04-25
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2023-04-26	2024-04-25
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2023-05-05	2024-05-04
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2023-04-25	2024-04-24
9	DC Power Supply	Agilent	E3632A	MY40027695	2023-05-05	2024-05-04
Maximum conducted output power						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2023-04-26	2024-04-25
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2023-04-25	2024-04-24
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2023-04-25	2024-04-24
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2023-04-25	2024-04-24
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9	DC Power Supply	Agilent	E3632A	MY40027695	2023-05-05	2024-05-04
Power spectral density						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2023-04-26	2024-04-25
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2023-04-25	2024-04-24
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2023-04-25	2024-04-24
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2023-04-25	2024-04-24
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2023-04-26	2024-04-25
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2023-04-26	2024-04-25
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2023-05-05	2024-05-04
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2023-04-25	2024-04-24

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
9	DC Power Supply	Agilent	E3632A	MY40027695	2023-05-05	2024-05-04
Emission bandwidth and occupied bandwidth						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2023-04-26	2024-04-25
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2023-04-25	2024-04-24
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2023-04-25	2024-04-24
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2023-04-25	2024-04-24
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2023-04-26	2024-04-25
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2023-04-26	2024-04-25
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2023-05-05	2024-05-04
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2023-04-25	2024-04-24
9	DC Power Supply	Agilent	E3632A	MY40027695	2023-05-05	2024-05-04
Band edge emissions (Radiated)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2023-04-26	2024-04-25
2	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120 D	2278	2023-05-26	2024-05-25
3	Amplifier	Agilent	8449B	3008A01120	2023-05-26	2024-05-25
4	Multi-device Controller	TuoPu	TPMDC	/	/	/
5	MXA signal analyzer	Agilent	N9020A	MY54440859	2023-05-05	2024-05-04
Undesirable emission limits (below 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2023-04-26	2024-04-25
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2023-06-11	2025-06-10
3	Amplifier	Hewlett-Packard	8447F	3113A06184	2023-04-26	2024-04-25
4	Multi-device Controller	TuoPu	TPMDC	/	/	/
5	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2021/05/30	2024/05/29
Undesirable emission limits (above 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2023-04-26	2024-04-25
2	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120 D	2278	2023-05-26	2024-05-25
3	Amplifier	Agilent	8449B	3008A01120	2023-05-26	2024-05-25
4	Multi-device Controller	TuoPu	TPMDC	/	/	/
5	MXA signal analyzer	Agilent	N9020A	MY54440859	2023-05-05	2024-05-04

5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test 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 shall be considered sufficient to comply with the provisions of this section.
Description of the antenna of EUT:	The antenna of the EUT is permanently attached.
Conclusion:	The EUT complies with the requirement of FCC PART 15.203.

6 Radio Spectrum Matter Test Results (RF)

6.1 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 C63.10-2013 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.

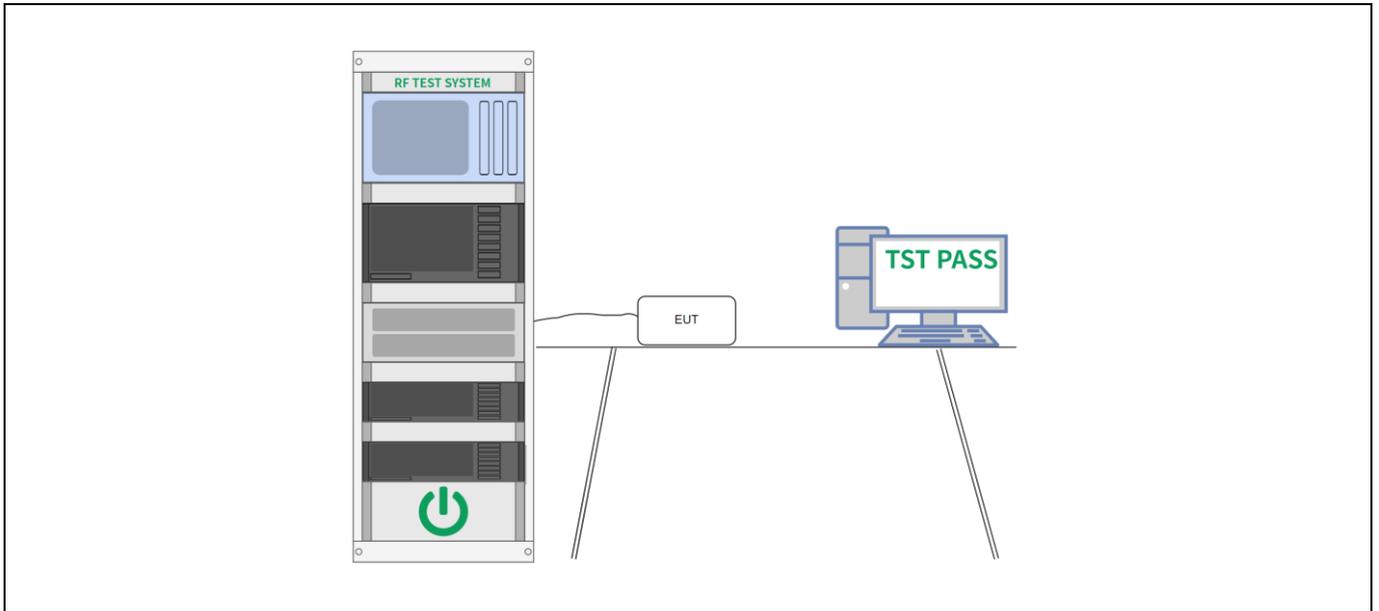
6.1.1 E.U.T. Operation:

Operating Environment:			
Temperature:	25 °C	Humidity:	60 %
Atmospheric Pressure:		101 kPa	
Pre test mode:	Mode1		
Final test mode:	Mode1		

6.1.2 Test Data:

Please Refer to Appendix for Details.

6.1.3 Test Setup Diagram:



7 Evaluation Results (Evaluation)

7.1 Antenna requirement

Test Requirement:	<p>The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.</p> <p>For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).</p> <p>When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.</p> <p>For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:</p> <p>Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.</p>
Description of the antenna of EUT:	The antenna of the EUT is permanently attached.
Conclusion:	The EUT complies with the requirement of FCC PART 15.203.

7.2 Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(1)(iv)
Test Limit:	<p>For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.</p> <p>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.</p>
Test Method:	ANSI C63.10-2013, section 12.3
Procedure:	<p>Method SA-1</p> <ol style="list-style-type: none"> Set span to encompass the entire 26 dB EBW or 99% OBW of the signal. Set RBW = 1 MHz. Set VBW \geq 3 MHz. Number of points in sweep \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq $\text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.) Sweep time = auto. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode. If transmit duty cycle $<$ 98%, use a video trigger with the trigger level set to

	<p>enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle $\geq 98\%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”</p> <p>h) Trace average at least 100 traces in power averaging (rms) mode.</p> <p>i) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.</p>
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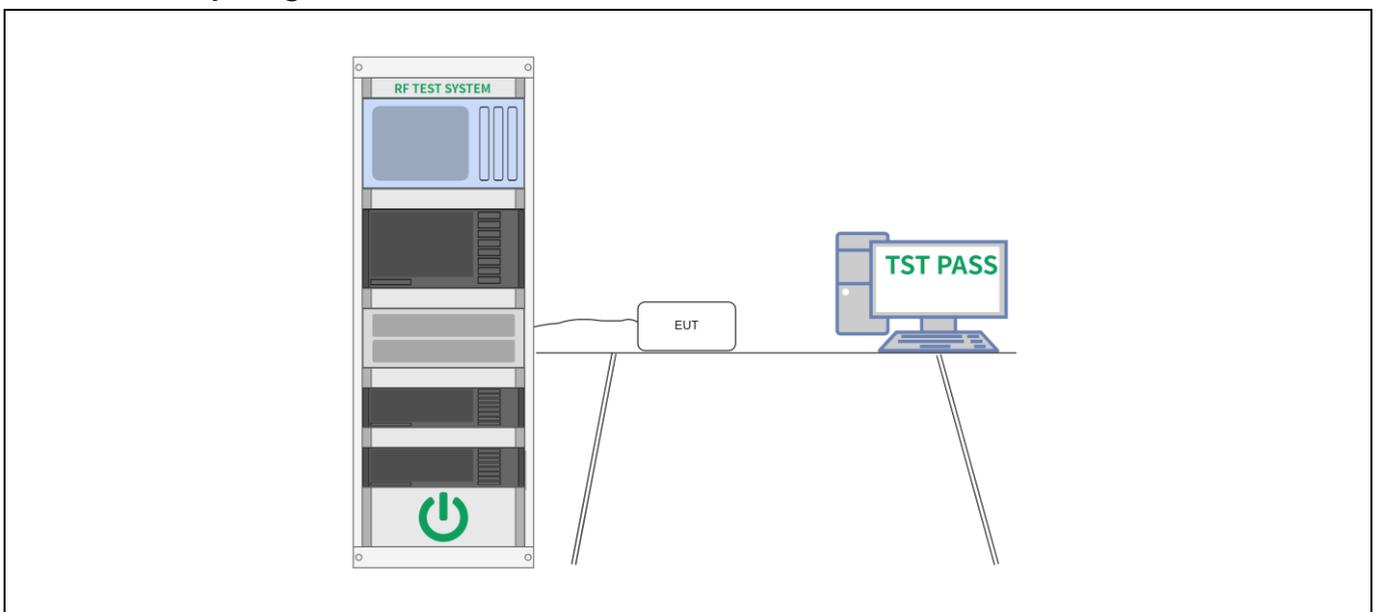
7.2.1 E.U.T. Operation:

Operating Environment:			
Temperature:	25 °C	Humidity:	60 %
Pre test mode:		Mode1	
Final test mode:		Mode1	

7.2.2 Test Data:

Please Refer to Appendix for Details.

7.2.3 Test Setup Diagram:



7.3 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(iv)
Test Limit:	For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz 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.
Test Method:	ANSI C63.10-2013, section 12.5
Procedure:	<p>a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, "Compute power...." (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.)</p> <p>b) Use the peak search function on the instrument to find the peak of the spectrum.</p> <p>c) Make the following adjustments to the peak value of the spectrum, if applicable:</p> <ol style="list-style-type: none"> 1) If method SA-2 or SA-2A was used, then add $[10 \log (1 / D)]$, where D is the duty cycle, to the peak of the spectrum. 2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. <p>d) The result is the PPSD.</p> <p>e) The procedure in item a) through item c) requires the use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified by some regulatory authorities. This requirement also permits use of resolution bandwidths less than 1 MHz "provided that the measured power is integrated to show the total power over the measurement bandwidth" (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth, the following adjustments to the procedures apply:</p> <ol style="list-style-type: none"> 1) Set $RBW \geq 1 / T$, where T is defined in 12.2 a). 2) Set $VBW \geq [3 \times RBW]$. 3) Care shall be taken such that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

7.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	60 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

7.3.2 Test Data:

Please Refer to Appendix for Details.

7.4 Emission bandwidth and occupied bandwidth

Test Requirement:	U-NII 1: No limits, only for report use.
Test Limit:	U-NII 1: No limits, only for report use.
Test Method:	ANSI C63.10-2013, section 6.9.3 & 12.4
Procedure:	<p>Emission bandwidth:</p> <ol style="list-style-type: none"> Set RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW. Detector = peak. Trace mode = max hold. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. <p>Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.</p> <p>Occupied bandwidth:</p> <ol style="list-style-type: none"> 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. 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. 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. Step a) through step c) might require iteration to adjust within the specified range. 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. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. 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. 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.

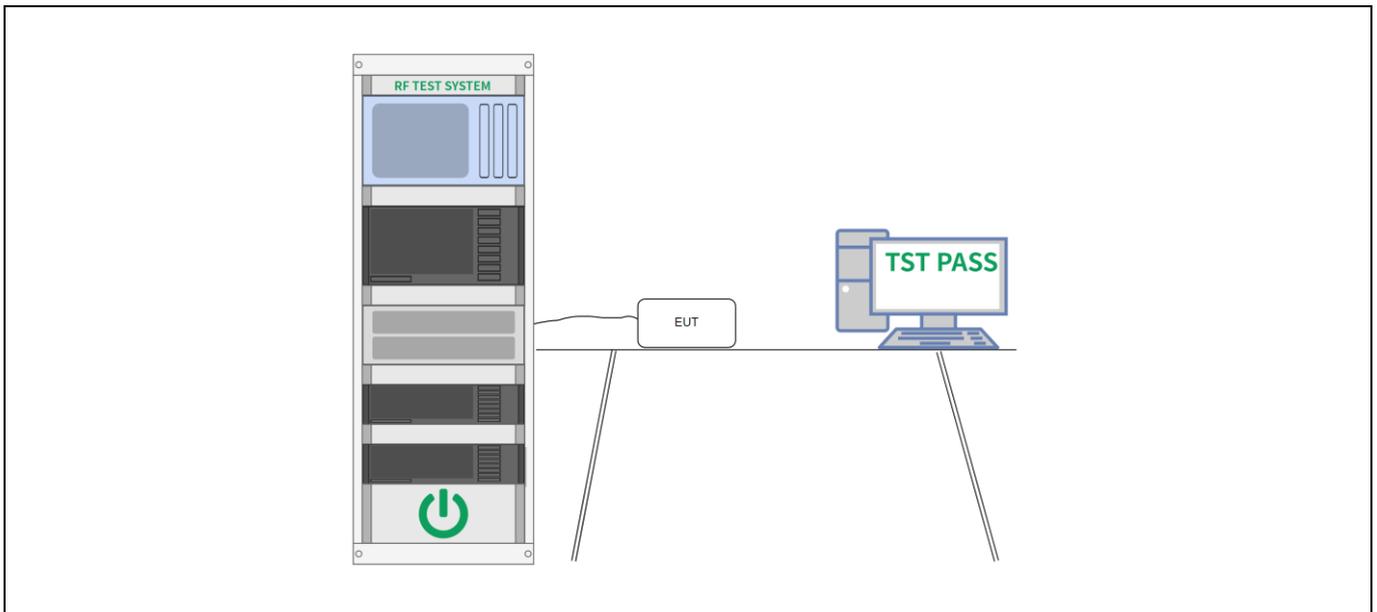
	Tabular data may be reported in addition to the plot(s).
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7.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	60 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

7.4.2 Test Data:

Please Refer to Appendix for Details.

7.4.3 Test Setup Diagram:


7.5 Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10)			
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.			
	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			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 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:

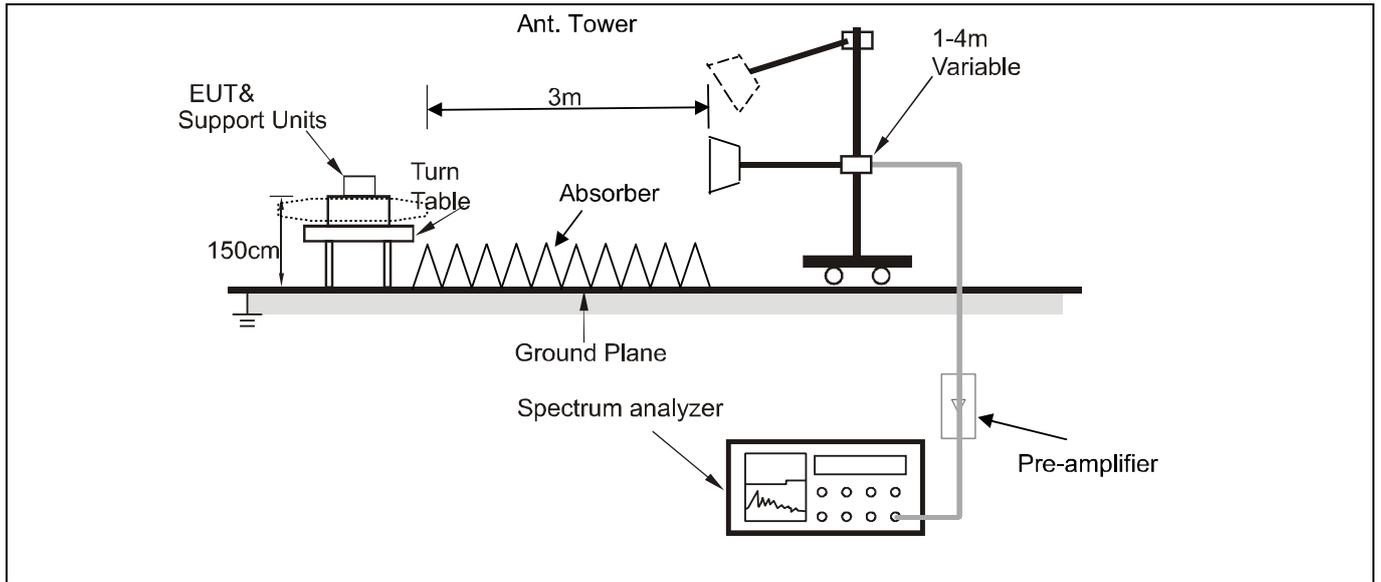
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3

	Above 960	500	3
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.5, 12.7.6		
Procedure:	<p>Above 1GHz:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>5 Note: The antenna gain and cable loss is compensated in the test plot.</p>		

7.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	50 %	Atmospheric Pressure:	100 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				
Note:	The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.				

7.5.2 Test Setup Diagram:



7.5.3 Test Data:

M550 Pro:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: L								
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4500.000	45.47	-0.91	44.56	74.00	-29.44	peak
2		4500.000	36.17	-0.91	35.26	54.00	-18.74	AVG
3		5150.000	46.90	1.92	48.82	74.00	-25.18	peak
4	*	5150.000	37.75	1.92	39.67	54.00	-14.33	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: L								
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4500.000	45.20	-0.91	44.29	74.00	-29.71	peak
2		4500.000	36.28	-0.91	35.37	54.00	-18.63	AVG
3		5150.000	47.69	1.92	49.61	74.00	-24.39	peak
4	*	5150.000	37.76	1.92	39.68	54.00	-14.32	AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		5350.000	47.01	2.03	49.04	74.00	-24.96	peak
2		5350.000	36.88	2.03	38.91	54.00	-15.09	AVG
3		5460.000	46.16	2.14	48.30	74.00	-25.70	peak
4	*	5460.000	37.24	2.14	39.38	54.00	-14.62	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		5350.000	46.27	2.03	48.30	74.00	-25.70	peak
2		5350.000	36.77	2.03	38.80	54.00	-15.20	AVG
3		5460.000	46.21	2.14	48.35	74.00	-25.65	peak
4	*	5460.000	37.38	2.14	39.52	54.00	-14.48	AVG

C34:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: L								
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4500.000	44.41	-0.91	43.50	74.00	-30.50	peak
2		4500.000	36.25	-0.91	35.34	54.00	-18.66	AVG
3		5150.000	45.31	1.92	47.23	74.00	-26.77	peak
4	*	5150.000	36.98	1.92	38.90	54.00	-15.10	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: L								
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4500.000	46.32	-0.91	45.41	74.00	-28.59	peak
2		4500.000	37.12	-0.91	36.21	54.00	-17.79	AVG
3		5150.000	48.25	1.92	50.17	74.00	-23.83	peak
4	*	5150.000	36.54	1.92	38.46	54.00	-15.54	AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		5350.000	46.36	2.03	48.39	74.00	-25.61	peak
2		5350.000	36.58	2.03	38.61	54.00	-15.39	AVG
3		5460.000	45.11	2.14	47.25	74.00	-26.75	peak
4	*	5460.000	38.25	2.14	40.39	54.00	-13.61	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		5350.000	47.21	2.03	49.24	74.00	-24.76	peak
2		5350.000	37.13	2.03	39.16	54.00	-14.84	AVG
3		5460.000	47.22	2.14	49.36	74.00	-24.64	peak
4	*	5460.000	37.54	2.14	39.68	54.00	-14.32	AVG

7.6 Emissions in frequency bands (below 1GHz)

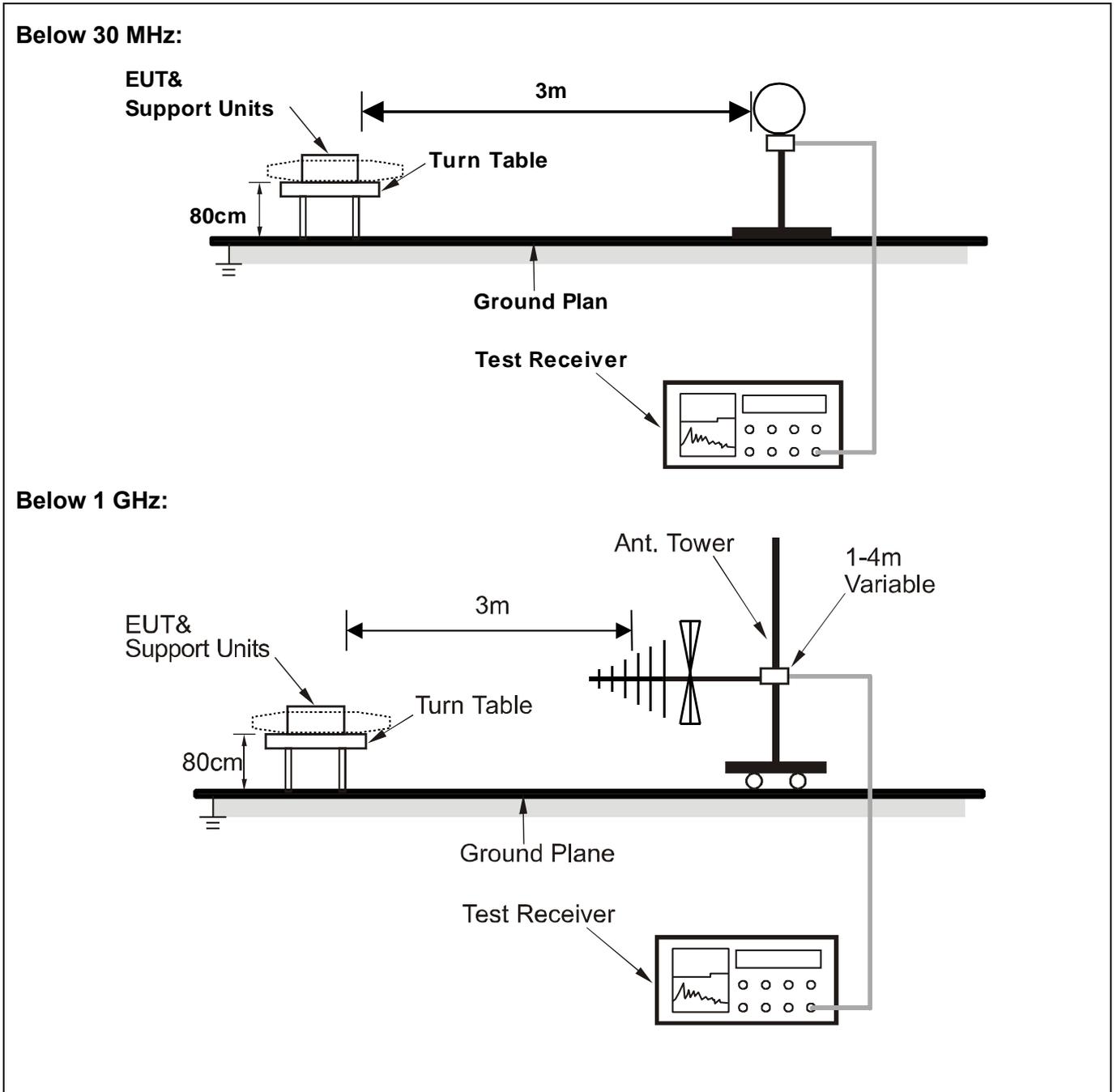
Test Requirement:	47 CFR Part 15.407(b)(9)																								
Test Limit:	<p>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.</p> <p>Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:</p> <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>	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 C63.10-2013, section 12.7.4, 12.7.5, 12.7.6																								
Procedure:	<p>Below 1GHz:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>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.</p> <p>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</p>																								

	<p>been displayed.</p> <p>Above 1GHz:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>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.</p> <p>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.</p> <p>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.</p>
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7.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	50 %	Atmospheric Pressure:	100 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				
Note:					
The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.					
All modes of operation of the EUT were investigated, and only the worst-case results are reported.					
There were no emissions found below 30MHz within 20dB of the limit.					

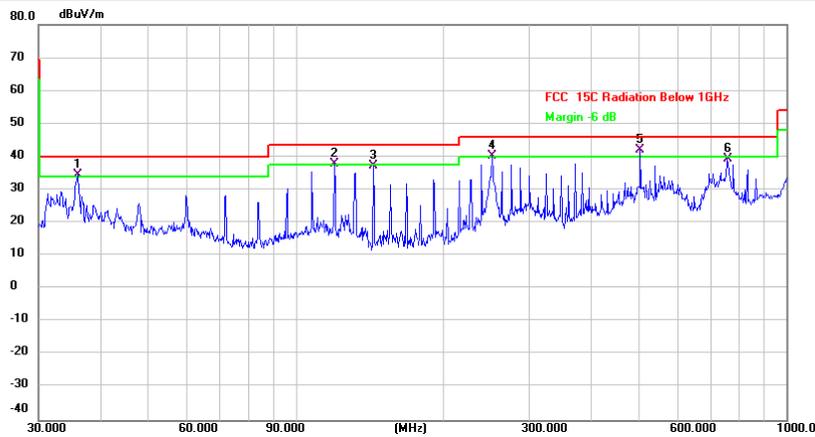
7.6.2 Test Setup Diagram:



7.6.3 Test Data:

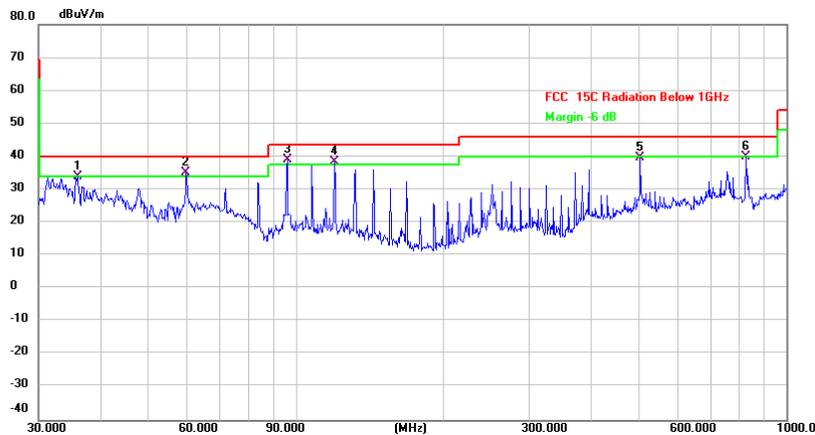
M550 Pro:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	!	36.0007	42.09	-7.60	34.49	40.00	-5.51	QP	
2	!	119.8556	48.14	-10.20	37.94	43.50	-5.56	QP	
3		143.8295	48.48	-11.28	37.20	43.50	-6.30	QP	
4	!	252.0627	48.05	-7.88	40.17	46.00	-5.83	QP	
5	*	504.7062	45.21	-3.21	42.00	46.00	-4.00	QP	
6		758.0408	37.50	1.92	39.42	46.00	-6.58	QP	

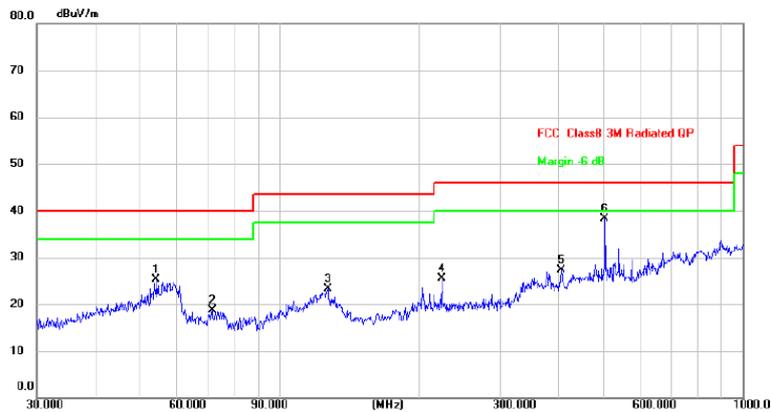
Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		36.0007	41.59	-7.60	33.99	40.00	-6.01	QP	
2	!	59.8588	41.82	-6.73	35.09	40.00	-4.91	QP	
3	*	96.0986	47.32	-8.13	39.19	43.50	-4.31	QP	
4	!	119.8556	48.57	-10.20	38.37	43.50	-5.13	QP	
5		504.7062	42.96	-3.21	39.75	46.00	-6.25	QP	
6		827.4934	37.52	2.48	40.00	46.00	-6.00	QP	

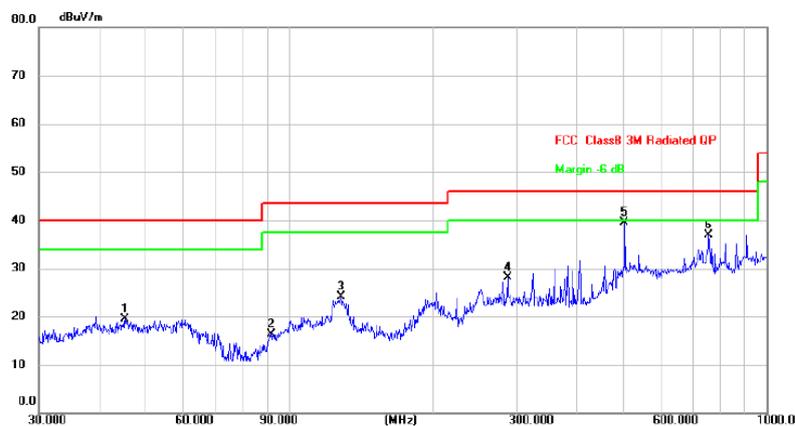
C34:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	54.2608	31.86	-6.59	25.27	40.00	-14.73	QP	
2	71.5805	28.07	-9.40	18.67	40.00	-21.33	QP	
3	127.2176	33.02	-9.70	23.32	43.50	-20.18	QP	
4	224.5192	31.36	-5.88	25.48	46.00	-20.52	QP	
5	406.0880	29.07	-1.74	27.33	46.00	-18.67	QP	
6 *	504.7062	38.16	0.19	38.35	46.00	-7.65	QP	

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	45.3753	26.05	-6.46	19.59	40.00	-20.41	QP	
2	91.8161	24.99	-8.62	16.37	43.50	-27.13	QP	
3	128.5629	34.02	-9.89	24.13	43.50	-19.37	QP	
4	286.9823	32.58	-4.53	28.05	46.00	-17.95	QP	
5 *	504.7062	39.36	0.19	39.55	46.00	-6.45	QP	
6	758.0407	31.36	5.54	36.90	46.00	-9.10	QP	

7.7 Emissions in frequency bands (above 1GHz)

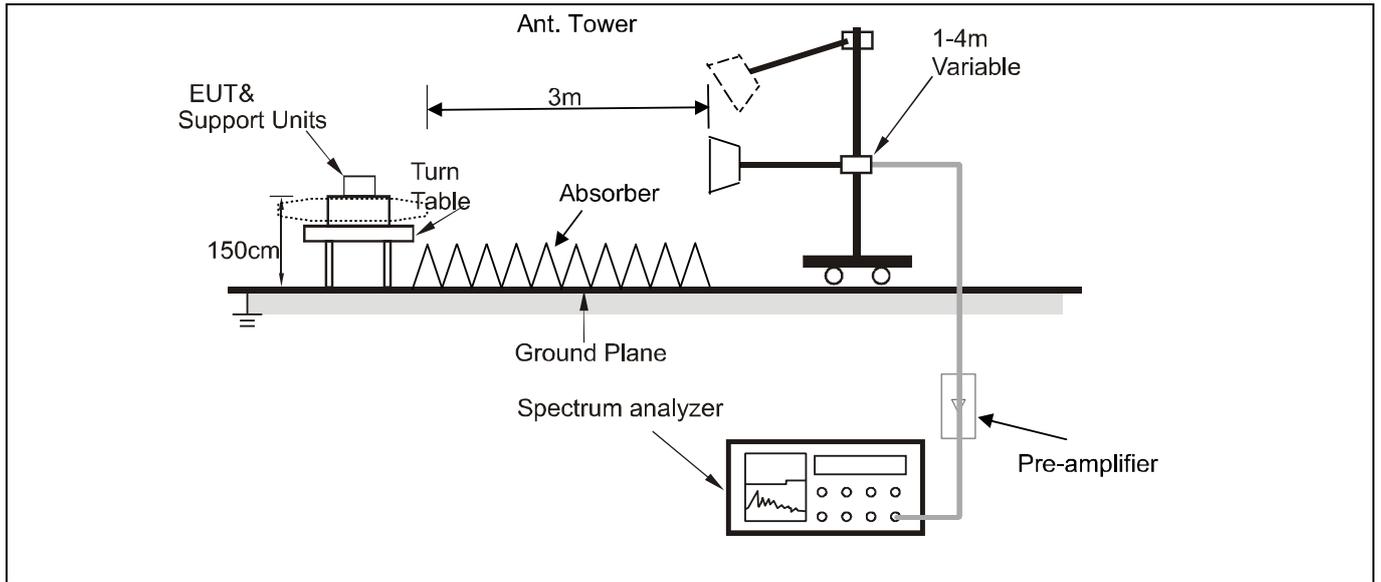
Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(10)		
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.		
	MHz	MHz	MHz
	0.090-0.110	16.42-16.423	399.9-410
	¹ 0.495-0.505	16.69475-16.69525	608-614
	2.1735-2.1905	16.80425-16.80475	960-1240
	4.125-4.128	25.5-25.67	1300-1427
	4.17725-4.17775	37.5-38.25	1435-1626.5
	4.20725-4.20775	73-74.6	1645.5-1646.5
	6.215-6.218	74.8-75.2	1660-1710
	6.26775-6.26825	108-121.94	1718.8-1722.2
	6.31175-6.31225	123-138	2200-2300
	8.291-8.294	149.9-150.05	2310-2390
	8.362-8.366	156.52475-156.52525	2483.5-2500
	8.37625-8.38675	156.7-156.9	2690-2900
	8.41425-8.41475	162.0125-167.17	3260-3267
	12.29-12.293	167.72-173.2	3332-3339
	12.51975-12.52025	240-285	3345.8-3358
	12.57675-12.57725	322-335.4	(²)
	13.36-13.41		
	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:		
	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 C63.10-2013, section 12.7.4, 12.7.5, 12.7.6		
Procedure:	<p>Above 1GHz:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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.</p> <p>g. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>Remark:</p> <p>1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>5 Note: The antenna gain and cable loss is compensated in the test plot.</p>		

7.7.1 E.U.T. Operation:

Operating Environment:			
Temperature:	25 °C	Humidity:	50 %
		Atmospheric Pressure:	100 kPa
Pre test mode:	Mode1		
Final test mode:	Mode1		
Note: Test frequency are from 1GHz to 40GHz, the amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.			
All modes of operation of the EUT were investigated, and only the worst-case results are reported.			

7.7.2 Test Setup Diagram:



7.7.3 Test Data:

M550 Pro:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: L							
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		10360.00	42.60	6.93	49.53	68.20	-18.68
							peak
2		10360.00	31.66	6.93	38.59	54.00	-15.41
							AVG
3		15540.00	44.59	13.65	58.24	74.00	-15.76
							peak
4	*	15540.00	34.36	13.65	48.01	54.00	-5.99
							AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: L							
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		10360.00	43.50	6.93	50.43	68.20	-17.77
							peak
2		10360.00	32.92	6.93	39.85	54.00	-14.15
							AVG
3		15540.00	45.39	13.65	59.04	74.00	-14.96
							peak
4	*	15540.00	35.08	13.65	48.73	54.00	-5.27
							AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10440.00	42.71	6.98	49.69	68.20	-18.51	peak
2		10440.00	32.82	6.98	39.80	54.00	-14.20	AVG
3		15660.00	44.92	13.69	58.61	74.00	-15.39	peak
4	*	15660.00	34.70	13.69	48.39	54.00	-5.61	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10440.00	43.04	6.98	50.02	68.20	-18.18	peak
2		10440.00	32.84	6.98	39.82	54.00	-14.18	AVG
3		15660.00	44.83	13.69	58.52	74.00	-15.48	peak
4	*	15660.00	33.40	13.69	47.09	54.00	-6.91	AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10480.00	42.14	7.00	49.14	68.20	-19.06	peak
2		10480.00	31.91	7.00	38.91	54.00	-15.09	AVG
3		15720.00	45.66	13.63	59.29	74.00	-14.71	peak
4	*	15720.00	35.03	13.63	48.66	54.00	-5.34	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10480.00	42.22	7.00	49.22	68.20	-18.98	peak
2		10480.00	31.56	7.00	38.56	54.00	-15.44	AVG
3		15720.00	45.42	13.63	59.05	74.00	-14.95	peak
4	*	15720.00	35.19	13.63	48.82	54.00	-5.18	AVG

C34:

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10360.00	44.22	6.93	51.15	74.00	-22.85	peak
2		10360.00	33.15	6.93	40.08	54.00	-13.92	AVG
3		15540.00	45.38	13.65	59.03	74.00	-14.97	peak
4	*	15540.00	35.34	13.65	48.99	54.00	-5.01	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		10360.00	42.42	6.93	49.35	74.00	-24.65	peak
2		10360.00	32.16	6.93	39.09	54.00	-14.91	AVG
3		15540.00	45.22	13.65	58.87	74.00	-15.13	peak
4	*	15540.00	34.91	13.65	48.56	54.00	-5.44	AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10440.00	42.41	6.98	49.39	74.00	-24.61	peak
2		10440.00	32.03	6.98	39.01	54.00	-14.99	AVG
3		15660.00	45.78	13.69	59.47	74.00	-14.53	peak
4	*	15660.00	35.33	13.69	49.02	54.00	-4.98	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		10440.00	42.37	6.98	49.35	74.00	-24.65	peak
2		10440.00	32.03	6.98	39.01	54.00	-14.99	AVG
3		15660.00	45.34	13.69	59.03	74.00	-14.97	peak
4	*	15660.00	35.19	13.69	48.88	54.00	-5.12	AVG

Mode1 / Polarization: Horizontal / Band: U-NII 1 / BW: 20 / CH: H

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	10480.00	42.97	7.00	49.97	74.00	-24.03	peak
2	10480.00	31.53	7.00	38.53	54.00	-15.47	AVG
3	15720.00	46.18	13.63	59.81	74.00	-14.19	peak
4 *	15720.00	35.92	13.63	49.55	54.00	-4.45	AVG

Mode1 / Polarization: Vertical / Band: U-NII 1 / BW: 20 / CH: H

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	10480.00	41.74	7.00	48.74	74.00	-25.26	peak
2	10480.00	31.63	7.00	38.63	54.00	-15.37	AVG
3	15720.00	44.88	13.63	58.51	74.00	-15.49	peak
4 *	15720.00	34.33	13.63	47.96	54.00	-6.04	AVG

Appendix

7.8 Appendix A1: Emission Bandwidth

7.8.1 Test Result

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.080	5169.440	5190.520	---	---
		5200	20.440	5189.920	5210.360	---	---
		5240	21.200	5229.400	5250.600	---	---

7.8.2 Test Graphs


7.9 Appendix A2: Occupied channel bandwidth

7.9.1 Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.259	5171.3764	5188.6354	---	---
		5200	17.164	5191.4574	5208.6214	---	---
		5240	17.211	5231.4727	5248.6837	---	---

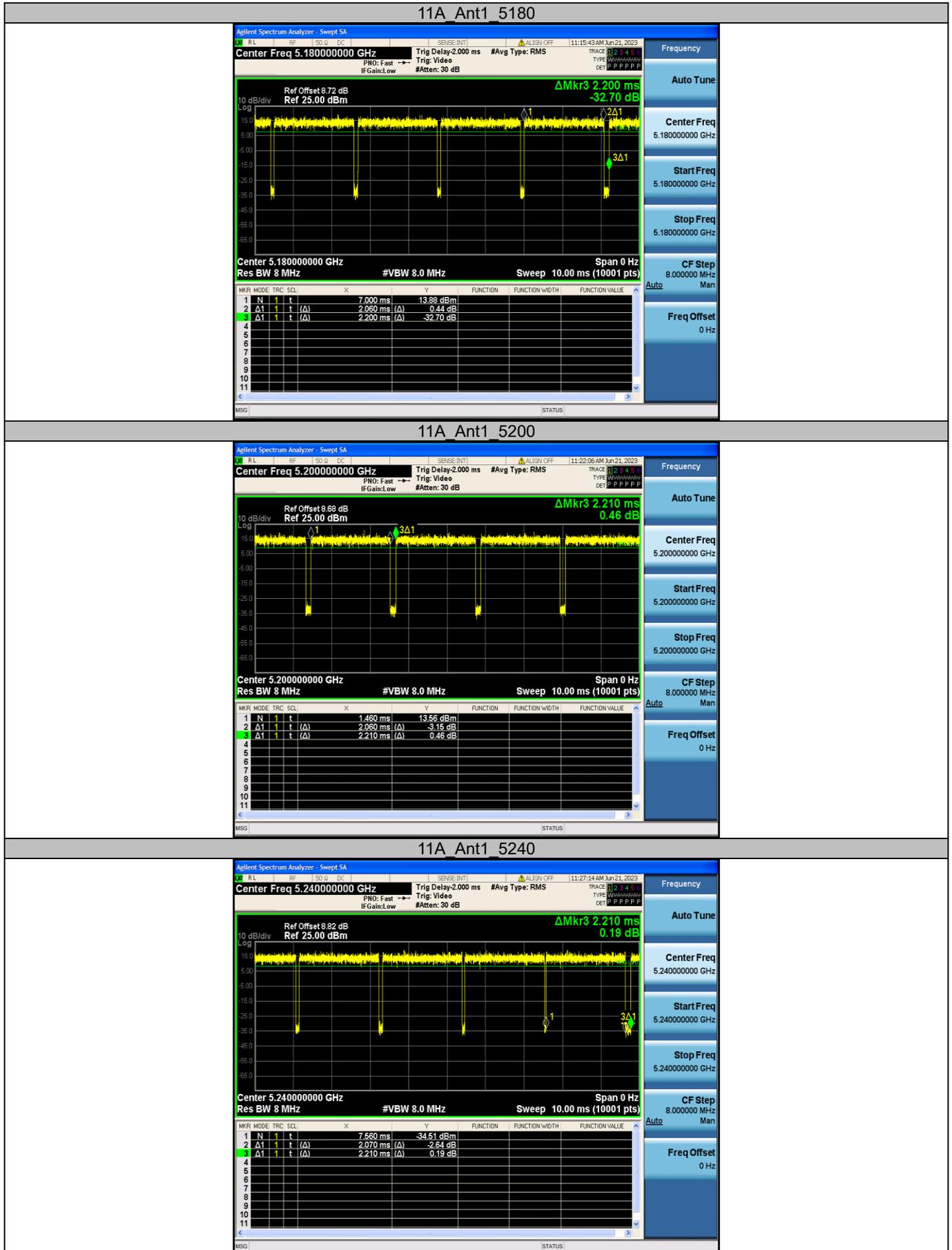
7.9.2 Test Graphs


Appendix B: Duty Cycle

Test Result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	2.06	2.20	93.64
		5200	2.06	2.21	93.21
		5240	2.07	2.21	93.67

Test Graphs



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]	EIRP [dBm]	Verdict
11A	Ant1	5180	12.02	93.64	0.29	12.31	≤23.98	15.31	PASS
		5200	12.29	93.21	0.31	12.60	≤23.98	15.60	PASS
		5240	11.66	93.67	0.28	11.94	≤23.98	14.94	PASS

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

Test Graphs



Appendix D: Maximum power spectral density

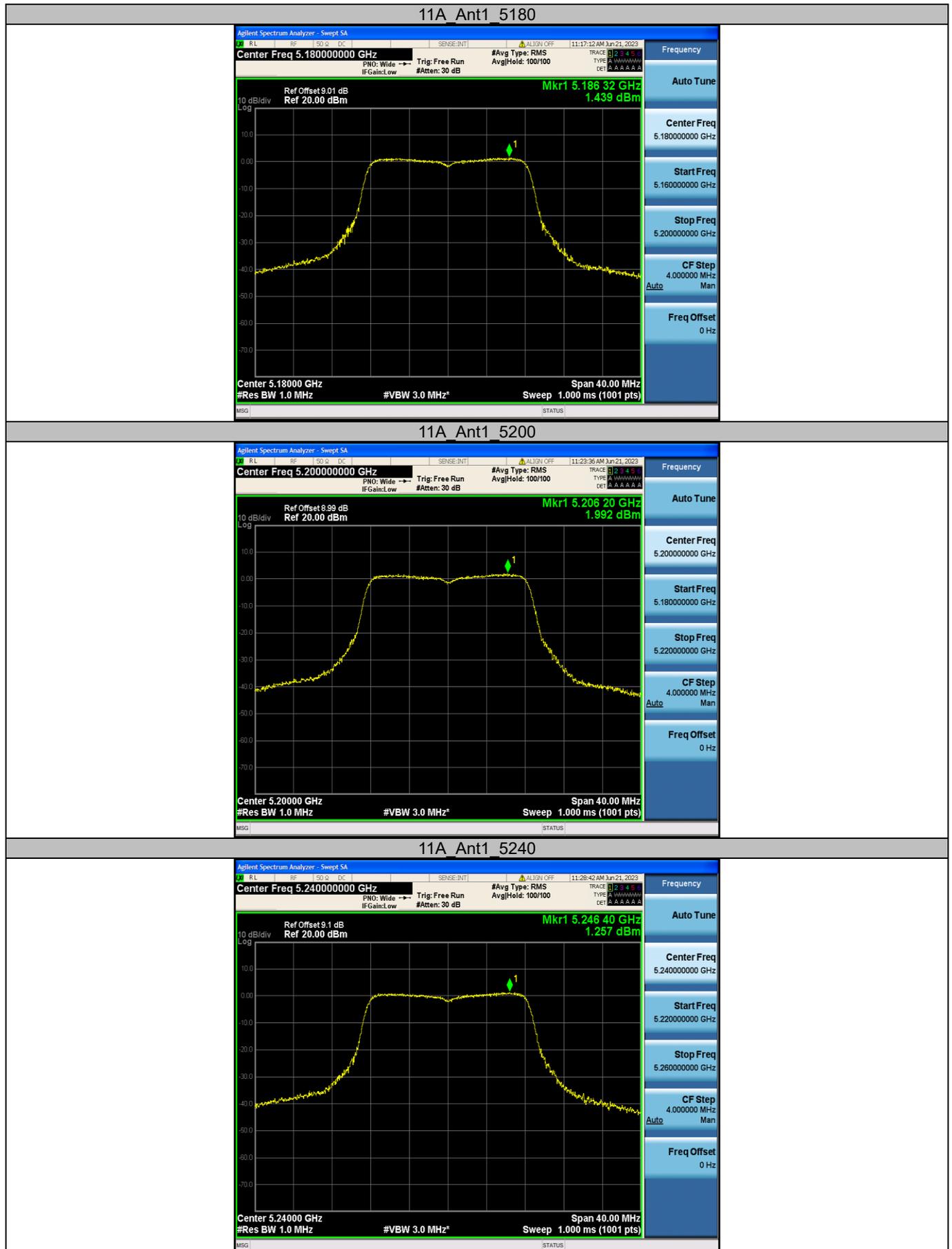
Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	1.44	≤11.00	PASS
		5200	1.99	≤11.00	PASS
		5240	1.26	≤11.00	PASS

Note:

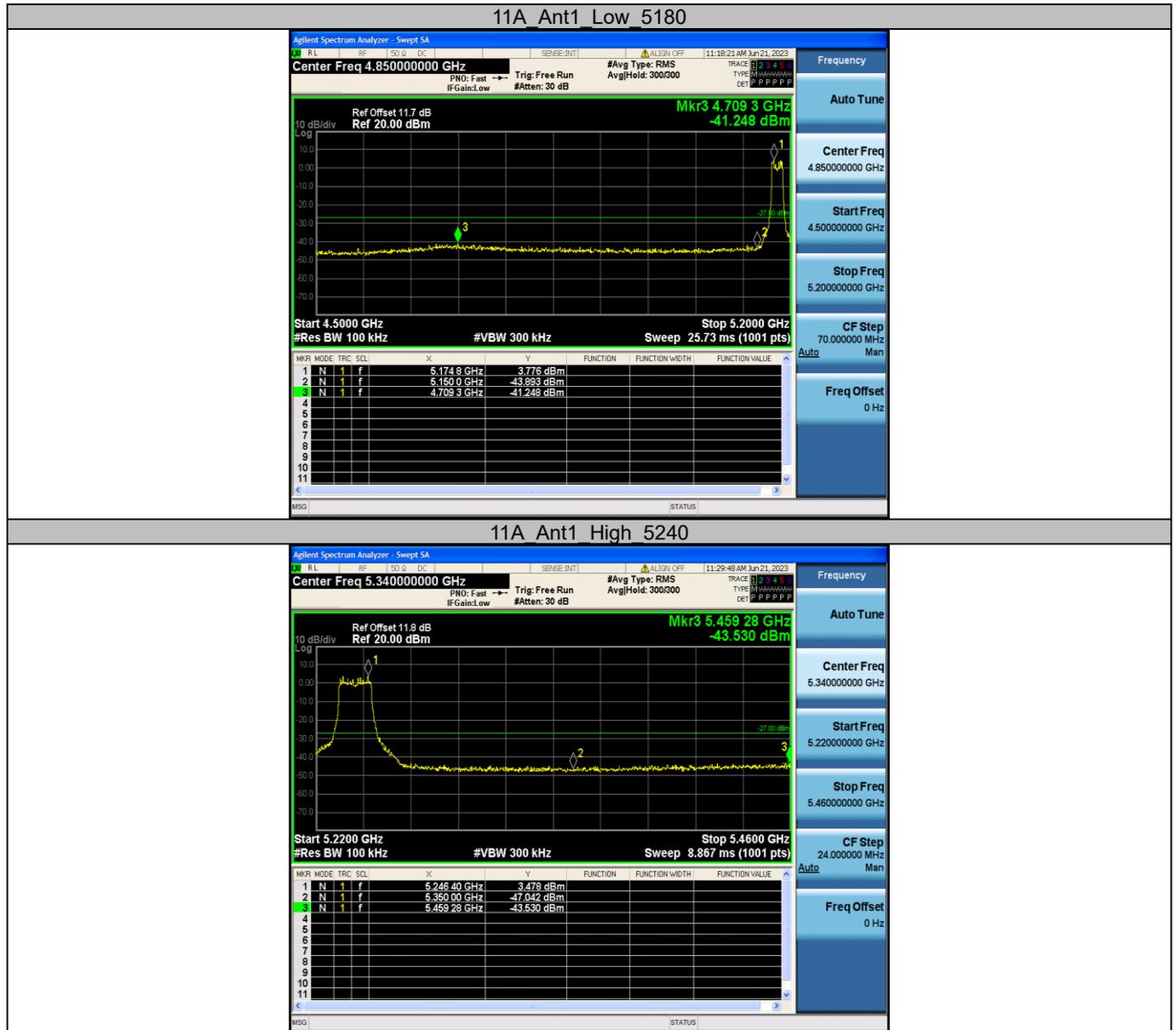
- 1.The Duty Cycle Factor and RBW Factor is compensated in the graph.

Test Graphs



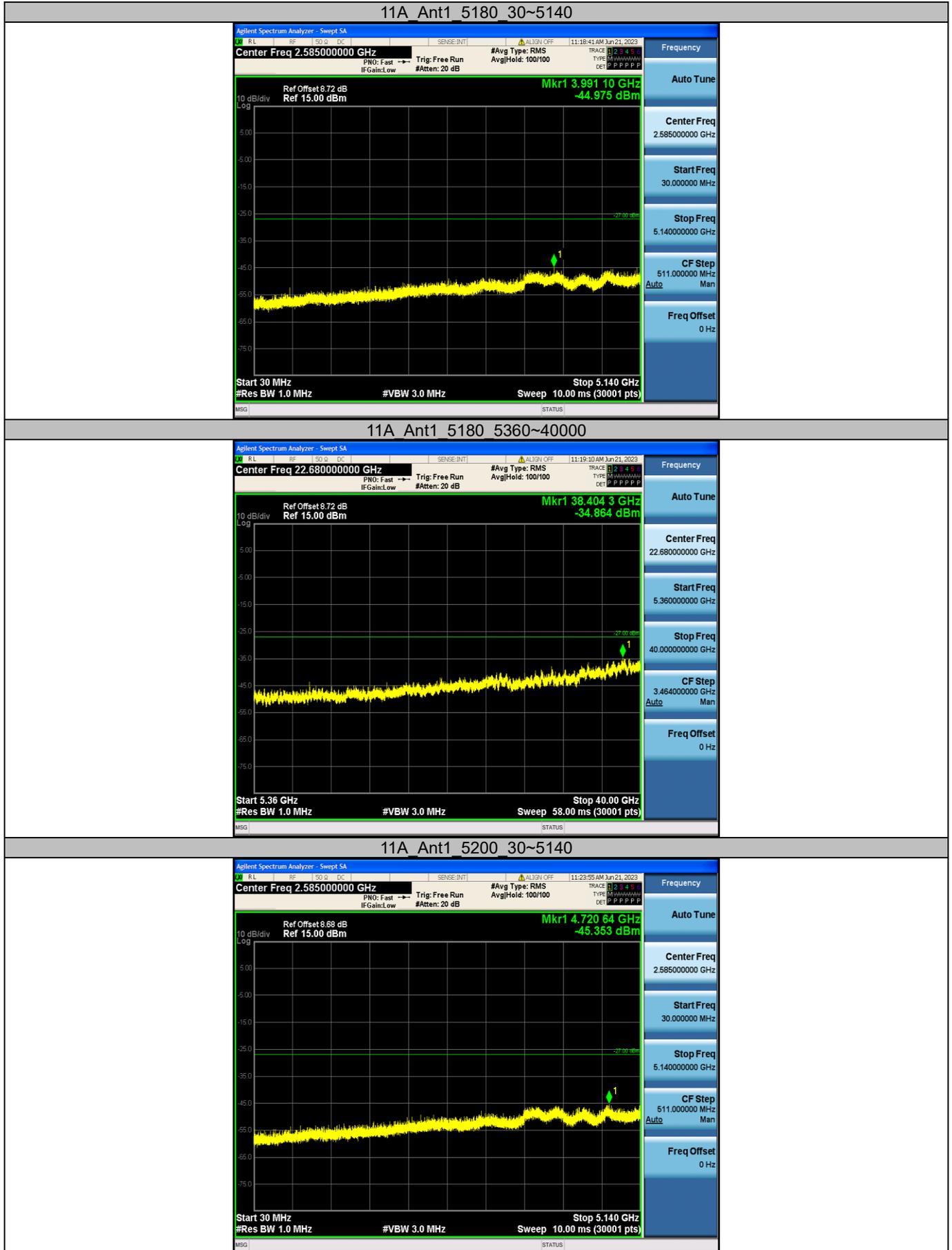
Appendix E: Band edge measurements

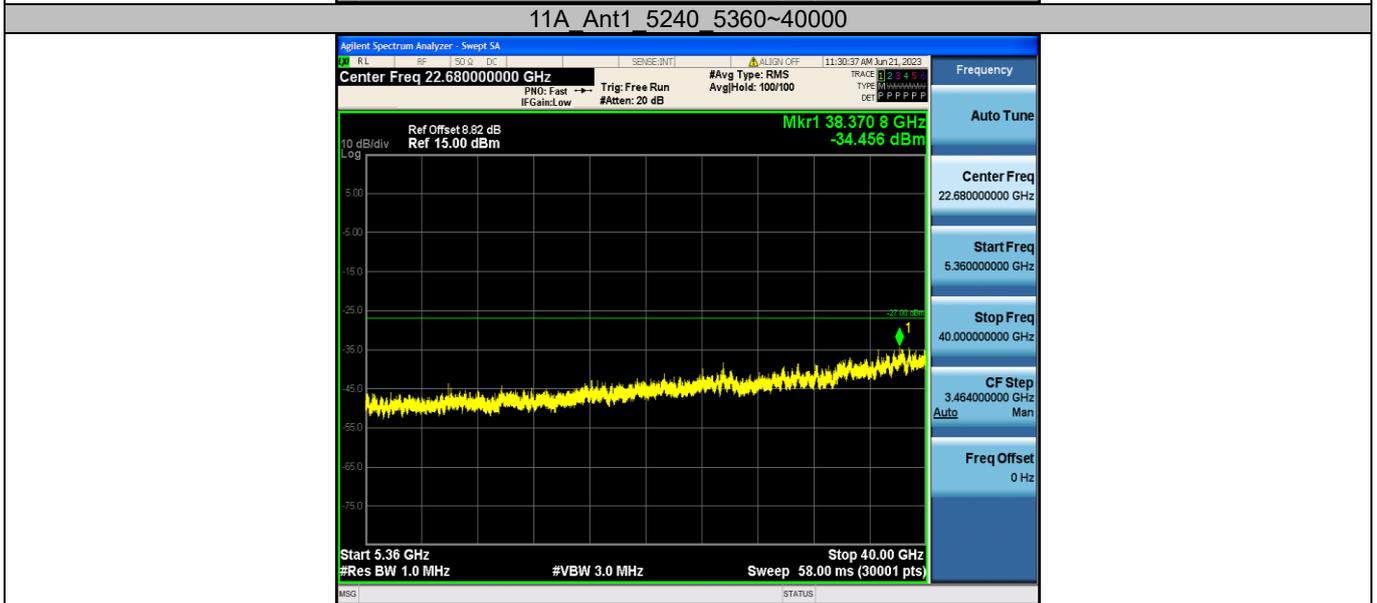
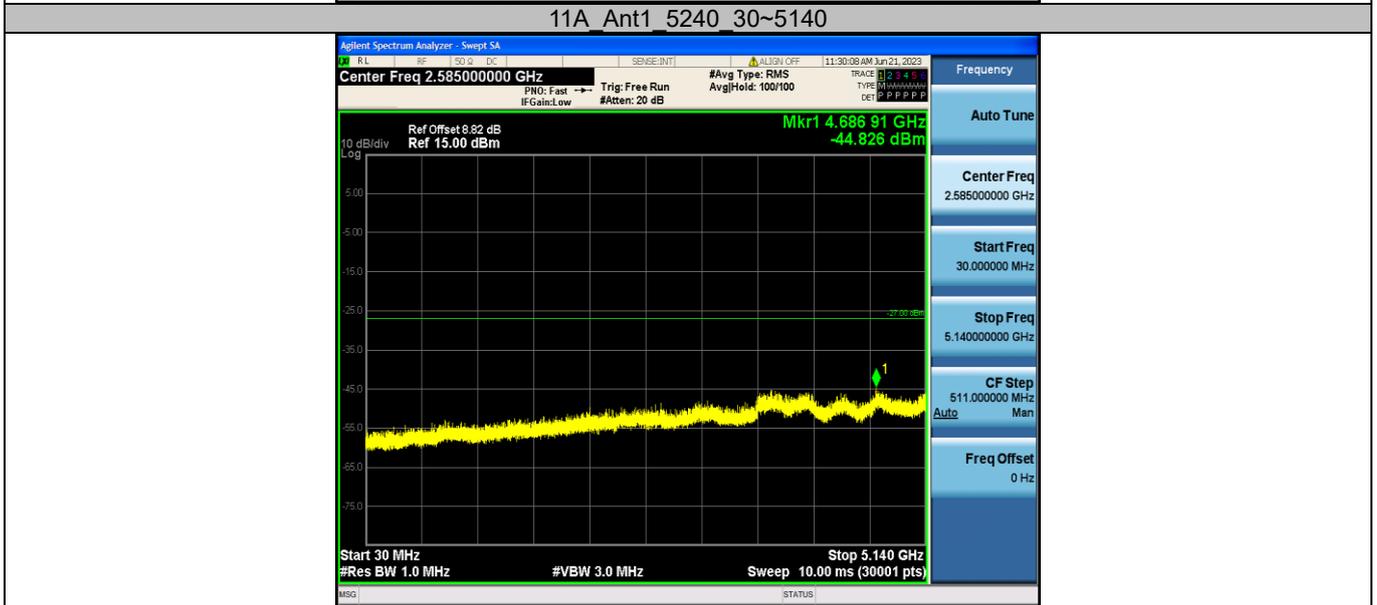
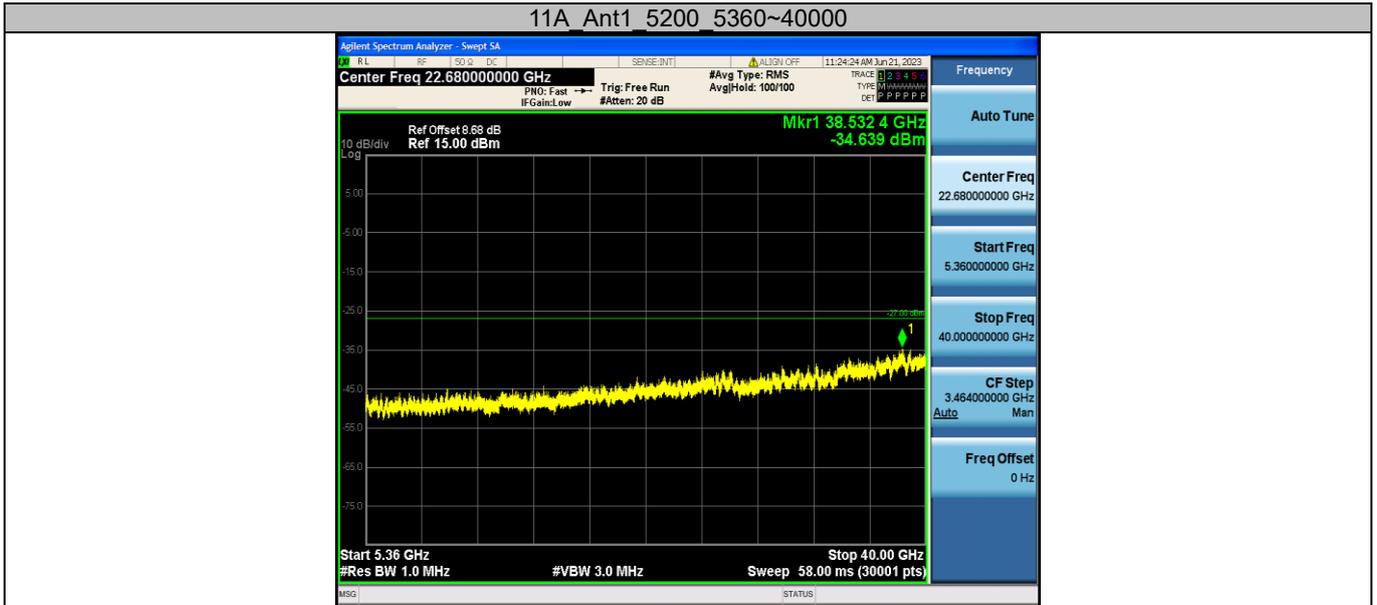
Test Graphs B1



Appendix F: Conducted Spurious Emission

Test Graphs





Appendix G: Frequency Stability

Test Result

Operating frequency: 5180 MHz			
Power Supply (VDC)	Temperature (°C)	Measured Frequency (MHz)	Frequency Deviation (ppm)
5V	-20	5180.015	2.91
	-10	5180.016	3.18
	0	5180.016	3.02
	10	5180.012	2.25
	20	5180.011	2.13
	30	5180.013	2.51
	40	5180.019	3.58
	50	5180.019	3.58
	60	5180.018	3.51
	70	5180.014	2.63
4.5V	20	5180.017	3.19
5.5V	20	5180.014	2.74

Photographs of the Test Setup

See the Appendix – Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----