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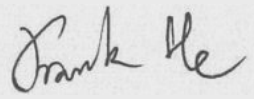
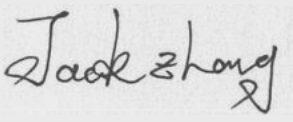
Test report No:
20B0117R-RF-US-P09V01

FCC TEST REPORT

Product Name	Wireless Access Point
Trademark	Extreme Networks
Model and /or type reference	AP510CX
Applicant´s name / address	Extreme Networks, Inc. Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119 U.S.A.
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart E Section 15.407 ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v02r01 KDB 662911 D01 Multiple Transmitter Output v02r01
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Tim Cao/Project Engineer 
Reviewed by (name / position & signature)	Frank He/ Technical Supervisor 
Approved by (name / position & signature)	Jack Zhang/ Supervisor 
Date of issue	2021-04-207
Report Version	V2.0
Report template No	Template_FCC Part15E-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Nov. 04, 2020
Date (start test)	Nov. 21, 2020
Date (finish test)	Mar. 31, 2021

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT : Equipment Under Test
QP : Quasi-Peak
CAV : CISPR Average
AV : Average
CDN : Coupling Decoupling Network
SAC : Semi-Anechoic Chamber
OATS : Open Area Test Site
BW : Bandwidth
AM : Amplitude Modulation
PM : Pulse Modulation
HCP : Horizontal Coupling Plane
VCP : Vertical Coupling Plane
U_N : Nominal voltage
*T*x : Transmitter
*R*x : Receiver
N/A : Not Applicable
N/M : Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
20B0117R-RF-US-P09V01	V1.0	Initial issue of report.	2021-01-25
20B0117R-RF-US-P09V01	V2.0	Section 4.6.4: Add data of CDD 4TX 4 spatial streams. (The test report No.: 20B0117R-RF-US-P09V01 V2.0 is to place the test report No.: 20B0117R-RF-US-P09V01 V1.0, and test report 20B0117R-RF-US-P09V01 V1.0 is obsoleted.)	2021-04-07

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart E Paragraph 15.407.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:

   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Informaion;
   - Chapter 1.3 Channel List;
   - Chapter 1.4 Data Rate;

USED EQUIPMENT

AC Power Line Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV216	101190	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV216	101044	2020.04.18	2021.04.17
Current Probe	R&S	EZ-17	100678	2020.03.26	2021.03.25
50ohm Termination	SHX	TF2	07081402	2020.09.23	2021.09.22
50ohm Termination	SHX	TF2	07081403	2020.09.23	2021.09.22
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2020.08.13	2021.08.12
Coaxial Cable	Suhner	RG 223	TR1-C1	2020.04.05	2021.04.04
Coaxial Cable	Suhner	RG 223	TR1-C2	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

Emissions in non-restricted frequency bands/ Occupied Bandwidth/ Fundamental emission output power Power Spectral Density / TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2020.08.15	2021.08.14
Coaxial Cable	Woken	SFL402	F02-150410-044	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

Radiated Emission(30MHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2020.12.06	2021.12.05
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020.11.27	2021.11.26
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2020.04.05	2021.04.04
Dekra test software	Dekra	-	-	-	-

Radiated Emission / AC5(1GHz-40GHz)(Chamber details)

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
MAX Signal Analyzer	Agilent	N9020B	MY59050482	2020.11.25	2021.11.24
Preamplifier	BXT	NA2651D	1364185	2020.05.06	2021.05.05
Preamplifier	CHENGYI	EMC184045SE	980263	2020.05.06	2021.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2020.09.21	2021.09.20
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2020.08.13	2021.08.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.03.02	2021.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.03.02	2021.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2020.03.02	2021.03.01
Dekra test software	Dekra	-	-	-	-

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Test item	Uncertainty
AC Power Line Conducted Emission	± 2.92 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.60 dB 200MHz~1GHz: 4.10 dB Vertical: 30MHz~200MHz: 4.80 dB 200MHz~1GHz: 4.10 dB
Radiated Emission(1GHz~40GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~40GHz: 4.70 dB Vertical: 18GHz~40GHz: 4.60 dB
RF Antenna Port Conducted Emission	± 1.13 dB
Radiated Emission Band Edge	± 5.00 dB
Occupied Bandwidth	± 279 Hz
Power Spectral Density	± 1.13 dB
Frequency Stability	±100 Hz
AC Power Line Conducted Emission	±2.02dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name ..... :	Wireless Access Point
Model No. ..... :	AP510CX
Trademark ..... :	Extreme Networks
Manufacturer ..... :	Extreme Networks, Inc
Manufacturer address ..... :	Extreme Networks, 6480 Via Del Oro / San Jose, CA 95119 U.S.A.

Wireless specifiction..... :	Wi-Fi			
Type of Modulation..... :	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM			
Frequency Range ..... :	☒	5150MHz~5250MHz	☒	Outdoor AP
			☒	Indoor AP
			☐	Fixed point-to-point AP
			☐	Mobile and Portable Client
	☒	5250MHz~5350MHz		
	☒	5470MHz~5725MHz	☒	With TDWR Channels
			☐	Without TDWR Channels
	☒	5725MHz~5850MHz		
Date Rate ..... :	802.11a: 6/9/12/18/24/36/48/54 Mbps			
	802.11n: up to 600 Mbps			
	802.11ac: up to 1.7 Gbps			
	802.11ax: up to 4.8 Gbps			

Rated power supply ..... :	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50/60 Hz
	☐	AC: 100 – 240 V, 50/60 Hz
	☒	DC: 12V
	☒	PoE: -48Vdc
Mounting position ..... :	☒	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☐	Other:

1.2 Antenna Information

Antenna model / type number.....:	Dipole Antenna: AI-DQ04360S Sector Antenna: ML-2452-SEC6M4-036			
Antenna serial number.....:	N/A			
Antenna Delivery .....:	☒	1TX + 1RX		
	☒	2TX + 2RX		
	☒	3TX + 3RX		
	☒	4TX + 4RX		
Antenna technology .....:	☒	SISO		
	☒	MIMO	☒	CDD
			☒	Beam-forming
Antenna Type.....:	☒	External	☒	Dipole
			☒	Sector
			☐	Sectorized
	☐	Internal	☐	PIFA
			☐	PCB
			☐	Others……..

For indoors and outdoors elevation angle ≤ 30°		
Antenna Type.....:	Dipole Antenna： AI-DQ04360S	Sector Antenna: ML-2452-SEC6M4-036
SISO Antenna Gain.....:	6.0 dBi	7.2 dBi
CDD-MIMO(2TX) Antenna Gain ....:	6.0 dBi for Power ,9.01 dBi for PSD	7.2 dBi for Power ,10.21 dBi for PSD
CDD-MIMO(4TX) Antenna Gain ....:	6.0 dBi for Power ,12.02 dBi for PSD	7.2 dBi for Power ,13.22 dBi for PSD
Beamforming(2TX) Antenna Gain..:	9.01 dBi for Power; 9.01 dBi for PSD	10.21 dBi for Power; 10.21 dBi for PSD
Beamforming(4TX) Antenna Gain..:	12.02 dBi for Power; 12.02 dBi for PSD	13.22 dBi for Power; 13.22 dBi for PSD
For outdoors elevation angle ＞30°		
Antenna Type.....:	Dipole Antenna： AI-DQ04360S	Sector Antenna: ML-2452-SEC6M4-036
SISO Antenna Gain.....:	0 dBi	3.0 dBi
CDD-MIMO(2TX) Antenna Gain ....:	0 dBi for Power ,3.01 dBi for PSD	3.0 dBi for Power ,6.01 dBi for PSD
CDD-MIMO(4TX) Antenna Gain ....:	0 dBi for Power ,6.02 dBi for PSD	3.0 dBi for Power ,9.02 dBi for PSD
Beamforming(2TX) Antenna Gain..:	3.01 dBi for Power; 3.01 dBi for PSD	6.01 dBi for Power; 6.01 dBi for PSD
Beamforming(4TX) Antenna Gain..:	6.02 dBi for Power; 6.02 dBi for PSD	9.02 dBi for Power; 9.02 dBi for PSD

Note 1: The product AP510CX adds 2 external antennas based on the DEKRA report: 19C2142R-RF-US-P09V02. The conducted power is less than the original reported power. We only evaluated the Output power, Band Edge, Radiated Emissions and Power Spectral Density to meet the consistency.
Note 2: The 1*1 and 3*3 power setting are same with 2*2 and 4*4, so we only test 2*2 and 4*4 for compliance.
Note 3: We have evaluated all antenna combination(Ant 1+2,1+3,1+4,2+3,2+4,3+4),shown in the report is the worst data(Ant 1+2).
Note 4: The device contains two 5GHz modules, and called eth6 and eth7, eth6 can work separately and eth7 can only transmit with eth6 which at 5150~5350MHz and eth6 work at 5470~5850MHz. So eth6 test all the frequency bands and eth7 only test 5150~5350MHz.

1.3 Channel List

802.11a/n/ac/ax(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5550 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	144	5720 MHz
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz						
802.11n/ac/ax(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz	62	5310 MHz
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	151	5755 MHz	159	5795 MHz	N/A	N/A
802.11ac/ax(80MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530MHz	122	5610 MHz
155	5775 MHz	N/A	N/A	N/A	N/A	N/A	N/A
802.11ax(160MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
50	5250 MHz	114	5570 MHz	N/A	N/A	N/A	N/A

1.4 Power vs Data Rate

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g	802.11a	20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	---	---	6	6.5	7.2	13.5	15.0
1	1	---	---	9	13.0	14.4	27.0	30.0
2	1	---	---	12	19.5	21.7	40.5	45.0
3	1	---	---	18	26.0	28.9	54.0	60.0
4	1	---	---	24	39.0	43.3	81.0	90.0
5	1	---	---	36	52.0	57.8	108.0	120.0
6	1	---	---	48	58.5	65.0	121.5	135.0
7	1	---	---	54	65.0	72.2	135.0	150.0
8	2	---	---	---	13.0	14.4	27.0	30.0
9	2	---	---	---	26.0	28.9	54.0	60.0
10	2	---	---	---	39.0	43.3	81.0	90.0
11	2	---	---	---	52.0	57.8	108.0	120.0
12	2	---	---	---	78.0	86.7	162.0	180.0
13	2	---	---	---	104.0	115.6	216.0	240.0
14	2	---	---	---	117.0	130.0	243.0	270.0
15	2	---	---	---	130.0	144.0	270.0	300.0
16	3	---	---	---	19.5	21.6	40.5	45
17	3	---	---	---	39	43.2	81	90
18	3	---	---	---	58.5	65.1	121.5	135
19	3	---	---	---	78	86.7	162	180
20	3	---	---	---	117	129.9	243	270
21	3	---	---	---	156	173.4	324	360
22	3	---	---	---	175.5	195	364.5	405
23	3	---	---	---	195	216.6	405	450
24	4	---	---	---	26	28.8	54	60
25	4	---	---	---	52	57.6	108	120
26	4	---	---	---	78	86.8	162	180
27	4	---	---	---	104	115.6	216	240
28	4	---	---	---	156	173.2	324	360
29	4	---	---	---	208	231.2	432	480
30	4	---	---	---	234	260	486	540
31	4	---	---	---	260	288.8	540	600

Note1: The blue form is the maximum power data rate.
2: The EUT supports 4 spatial streams.

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)					
				20MHz		40MHz		80MHz	
				Guard Interval		Guard Interval		Guard Interval	
				1600ns	800ns	1600ns	800ns	1600ns	800ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5
	1	QPSK	1/2	13	14.4	27	30	58.5	65
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5
	3	16-QAM	1/2	26	28.9	54	60	117	130
	4	16-QAM	3/4	39	43.3	81	90	175.5	195
	5	64-QAM	2/3	52	57.8	108	120	234	260
	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5
	7	64-QAM	5/6	65	72.2	135	150	292.5	325
	8	256-QAM	3/4	78	86.7	162	180	351	390
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3
2	10	BPSK	1/2	13	14.4	27	30	58.6	65
	11	QPSK	1/2	26	28.8	54	60	117	130
	12	QPSK	3/4	39	43.4	81	90	175.6	195
	13	16-QAM	1/2	52	57.8	108	120	234	260
	14	16-QAM	3/4	78	86.6	162	180	351	390
	15	64-QAM	2/3	104	115.6	216	240	468	520
	16	64-QAM	3/4	117	130	243	270	526.6	585
	17	64-QAM	5/6	130	144.4	270	300	585	650
	18	256-QAM	3/4	156	173.4	324	360	702	780
	19	256-QAM	5/6	N/A	N/A	360	400	780	866.6
3	20	BPSK	1/2	19.5	21.6	40.5	45	87.9	97.5
	21	QPSK	1/2	39	43.2	81	90	175.5	195
	22	QPSK	3/4	58.5	65.1	121.5	135	263.4	292.5
	23	16-QAM	1/2	78	86.7	162	180	351	390
	24	16-QAM	3/4	117	129.9	243	270	526.5	585
	25	64-QAM	2/3	156	173.4	324	360	702	780
	26	64-QAM	3/4	175.5	195	364.5	405	789.9	877.5
	27	64-QAM	5/6	195	216.6	405	450	877.5	975
	28	256-QAM	3/4	234	260.1	486	540	1053	1170
	29	256-QAM	5/6	N/A	N/A	540	600	1170	1299.9
4	30	BPSK	1/2	26	28.8	54	60	117.2	130
	31	QPSK	1/2	52	57.6	108	120	234	260
	32	QPSK	3/4	78	86.8	162	180	351.2	390
	33	16-QAM	1/2	104	115.6	216	240	468	520
	34	16-QAM	3/4	156	173.2	324	360	702	780
	35	64-QAM	2/3	208	231.2	432	480	936	1040
	36	64-QAM	3/4	234	260	486	540	1053.2	1170
	37	64-QAM	5/6	260	288.8	540	600	1170	1300
	38	256-QAM	3/4	312	346.8	648	720	1404	1560
	39	256-QAM	5/6	N/A	N/A	720	800	1560	1733.2

Note 1: The blue form is the maximum power data rate.
2: The EUT supports 4 spatial streams.

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)							
				20MHz		40MHz		80MHz		160MHz	
				Guard Interval		Guard Interval		Guard Interval		Guard Interval	
				1600 ns GI	800 ns GI	1600 ns GI	800 ns GI	1600 ns GI	800 ns GI	1600 ns GI	800 ns GI
1	0	BPSK	1/2	4	4	8	9	17	18	34	36
	1	QPSK	1/2	16	17	33	34	68	72	136	144
	2	QPSK	3/4	24	26	49	52	102	108	204	216
	3	16-QAM	1/2	33	34	65	69	136	144	272	282
	4	16-QAM	3/4	49	52	98	103	204	216	408	432
	5	64-QAM	2/3	65	69	130	138	272	288	544	576
	6	64-QAM	3/4	73	77	146	155	306	324	613	649
	7	64-QAM	5/6	81	86	163	172	340	360	681	721
	8	256-QAM	3/4	98	103	195	207	408	432	817	865
	9	256-QAM	5/6	108	115	217	229	453	480	907	961
	10	1024-QAM	3/4	122	129	244	258	510	540	1021	1081
	11	1024-QAM	5/6	135	143	271	287	567	600	1134	1201
2	12	BPSK	1/2	8	8	16	18	34	36	68	72
	13	QPSK	1/2	32	34	66	68	136	144	272	288
	14	QPSK	3/4	48	52	98	104	204	216	408	432
	15	16-QAM	1/2	66	68	130	138	272	288	544	564
	16	16-QAM	3/4	98	104	196	206	408	432	816	864
	17	64-QAM	2/3	130	138	260	276	544	576	1088	1152
	18	64-QAM	3/4	146	154	292	310	612	648	1226	1298
	19	64-QAM	5/6	162	172	326	344	680	720	1362	1442
	20	256-QAM	3/4	196	206	390	414	816	864	1634	1730
	21	256-QAM	5/6	216	230	434	458	906	960	1814	1922
	22	1024-QAM	3/4	244	258	488	516	1020	1080	2042	2162
	23	1024-QAM	5/6	270	286	542	574	1134	1200	2268	2402
3	24	BPSK	1/2	12	12	24	27	51	54	102	108
	25	QPSK	1/2	48	51	99	102	204	216	408	432
	26	QPSK	3/4	72	78	147	156	306	324	612	648
	27	16-QAM	1/2	99	102	195	207	408	432	816	846
	28	16-QAM	3/4	147	156	294	309	612	648	1224	1296
	29	64-QAM	2/3	195	207	390	414	816	864	1632	1728
	30	64-QAM	3/4	219	231	438	465	918	972	1839	1947
	31	64-QAM	5/6	243	258	489	516	1020	1080	2043	2163
	32	256-QAM	3/4	294	309	585	621	1224	1296	2451	2595
	33	256-QAM	5/6	324	345	651	687	1359	1440	2721	2883
	34	1024-QAM	3/4	366	387	732	774	1530	1620	3063	3243
	35	1024-QAM	5/6	405	429	813	861	1701	1800	3402	3603
4	36	BPSK	1/2	16	16	32	36	68	72	136	144
	37	QPSK	1/2	64	68	132	136	272	288	544	576
	38	QPSK	3/4	96	104	196	208	408	432	816	864
	39	16-QAM	1/2	132	136	260	276	544	576	1088	1128
	40	16-QAM	3/4	196	208	392	412	816	864	1632	1728
	41	64-QAM	2/3	260	276	520	552	1088	1152	2176	2304
	42	64-QAM	3/4	292	308	584	620	1224	1296	2452	2596
	43	64-QAM	5/6	324	344	652	688	1360	1440	2724	2884
	44	256-QAM	3/4	392	412	780	828	1632	1728	3268	3460
	45	256-QAM	5/6	432	460	868	916	1812	1920	3628	3844
	46	1024-QAM	3/4	488	516	976	1032	2040	2160	4084	4324
	47	1024-QAM	5/6	540	572	1084	1148	2268	2400	4536	4804

Note 1: The blue form is the maximum power data rate.
2: The EUT supports 4 spatial streams.

Note: The General Description of the Item, antenna information, Data Rate and Channel List in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Test Mode	Mode 1: Transmit by 802.1a
	Mode 2: Transmit by 802.11n (20MHz)
	Mode 3: Transmit by 802.11n (40MHz)
	Mode 4: Transmit by 802.11ac (20MHz)
	Mode 5: Transmit by 802.11ac (40MHz)
	Mode 6: Transmit by 802.11ac (80MHz)
	Mode 7: Transmit by 802.11ax (20MHz)
	Mode 8: Transmit by 802.11ax (40MHz)
	Mode 9: Transmit by 802.11ax (80MHz)
	Mode 10: Transmit by 802.11ax (160MHz)
	Mode 11: Simultaneous transmission

Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
Note 2: For portable device, radiated tests was verified over X, Y, Z axis, and shown the worst case on this report.

2.2 Accessories Information

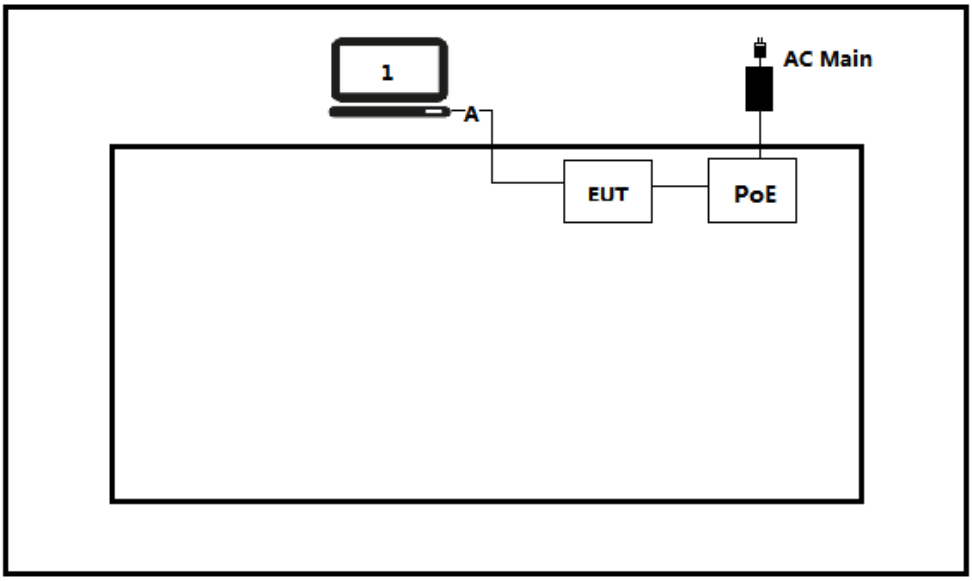
Accessories Information	Brand/model name	Cable		
		Length used during test [m]	Attached during test	Shielded
Ethernet port to serial port cable + Serial port to USB port cable	N/A	1	☒	☐
Ethernet port to serial port cable + Serial port to USB port cable	N/A	10	☒	☐
			☐	☐
			☐	☐
			☐	☐

2.3 Auxiliary equipment / Test software for the EUT

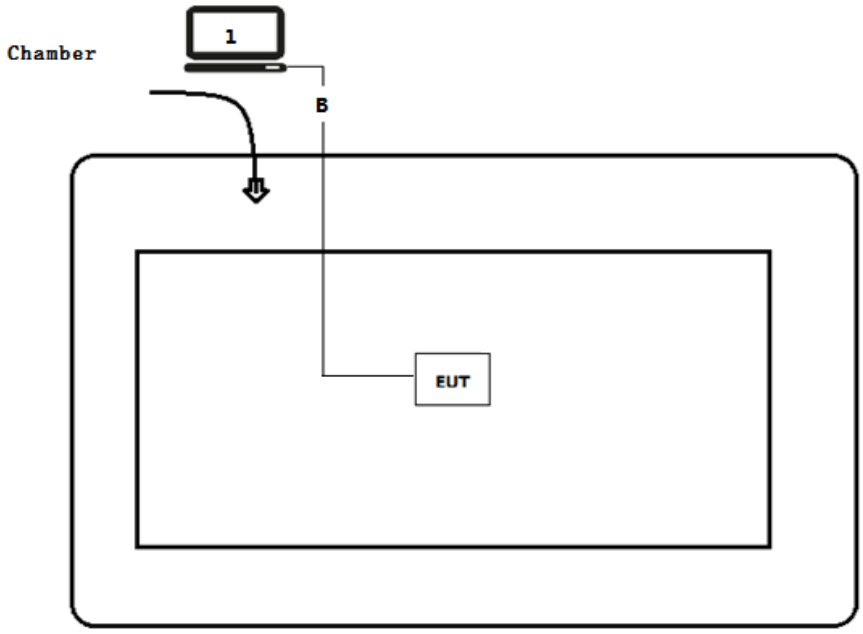
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Notebook	Think pad x220	Lenovo	Adapter
software	Type / Version	Manufacturer	Supplied by
IPOP	N/A	N/A	N/A

2.4 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2.5 Testing process

1	Setup the EUT as shown in Section 2.4.
2	Execute the IPOP on the notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart E Section 15.407	2017	General technical requirements for 5.15-5.25 GHz;5.25-5.35 GHz; 5.47-5.725 GHz;5.725-5.85 GHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 789033 D02 General UNII Test Procedures New Rules v02r01	2017	This document provides guidance for determining emissions compliance of U-NII devices under Part 15, Subpart E of the FCC rules.
KDB 662911 D01 v02r01	2013	Emissions Testing of Transmitters with Multiple Outputs in the Same Band

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted Emission	FCC CFR Title 47 Part 15 Subpart E: Section 15.207	N/A	---
Radiated Emission	FCC CFR Title 47 Part 15 Subpart E: Section 15.209	PASS	---
Emission bandwidth and occupied bandwidth	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(e)	N/A	---
6dB Emission Bandwidth	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(e)	N/A	---
Power Output	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(a)	PASS	---
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(a)	PASS	---
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart E: Section 15.205, 15.407(b)	PASS	---
Frequency Stability	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(g)	N/A	---

Note: The product can only work on full RU under 802.11ax mode, so that there is no information and data for RU configuration in this report.

4 TEST RESULTS

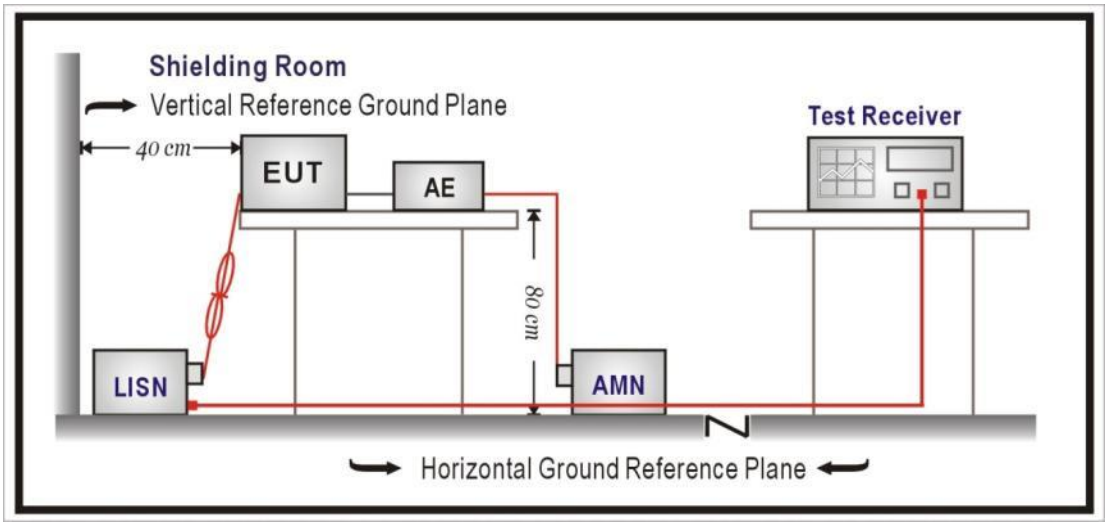
4.1 AC Power Line Conducted Emission	VERDICT: PASS

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV)[1)]]	Limit: AV [dB(μV) [1)]]
0,15 - 0,50	66 – 56 [2)]	56 - 46 [2)]
0,50 - 5,0	56	46
5,0 - 30	60	50

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.
NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.
NOTE 2: Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

4.1.2 Test Setup

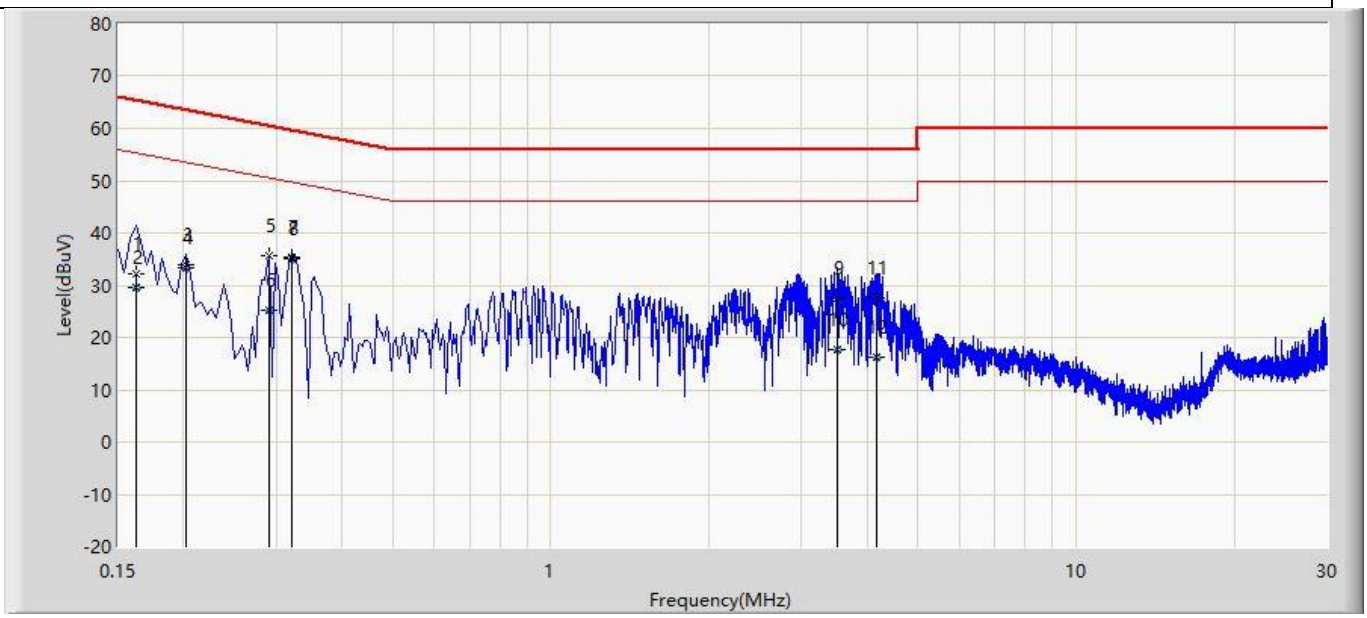


4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

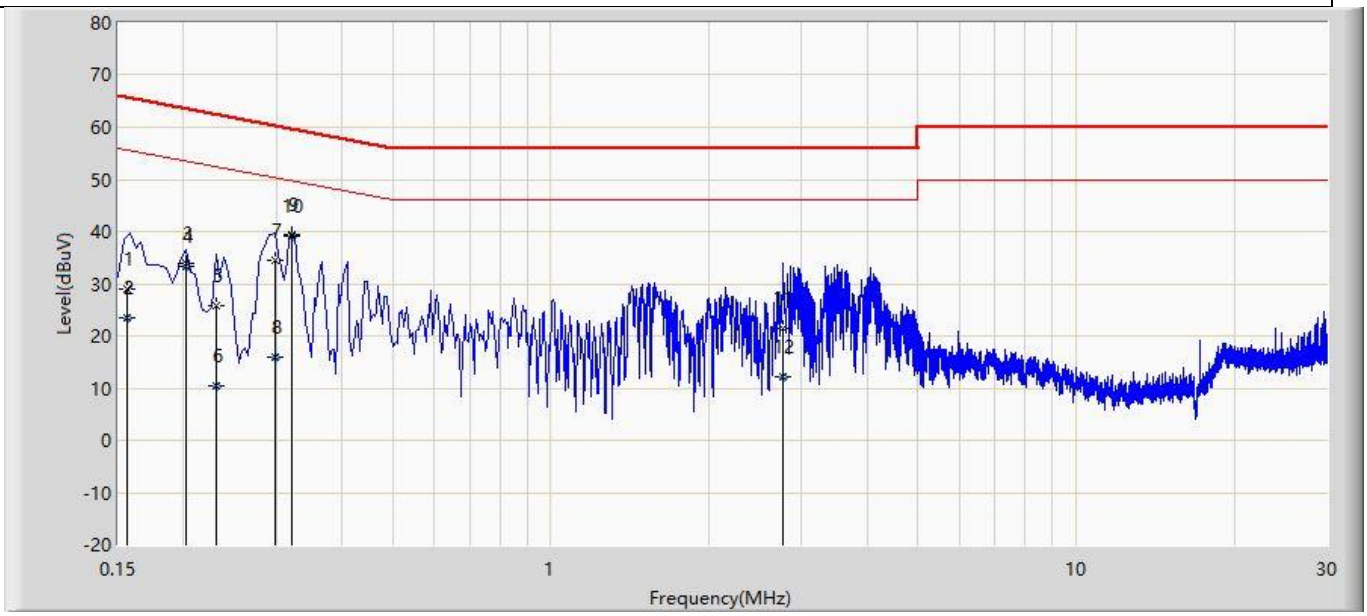
4.1.4 Test Data

Profile: 20B0117R	Page No.: 1
Engineer: Yingfei.Wang	
Site: TR1	Time: 2021/01/24 - 13:43
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101044_(0.009-30MHz)	Polarity: Neutral
EUT: AP510CX	Power: PoE -48V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.162	32.296	22.629	-33.064	65.361	9.667	QP
2		0.162	29.515	19.847	-25.846	55.361	9.667	AV
3		0.202	33.811	24.109	-29.716	63.528	9.703	QP
4		0.202	33.215	23.512	-20.313	53.528	9.703	AV
5		0.290	35.678	25.962	-24.847	60.524	9.716	QP
6		0.290	25.302	15.587	-25.222	50.524	9.716	AV
7		0.322	35.438	25.721	-24.217	59.655	9.717	QP
8	*	0.322	35.200	25.482	-14.456	49.655	9.717	AV
9		3.502	27.424	17.555	-28.576	56.000	9.869	QP
10		3.502	17.785	7.915	-28.215	46.000	9.869	AV
11		4.158	27.651	17.749	-28.349	56.000	9.902	QP
12		4.158	16.121	6.219	-29.879	46.000	9.902	AV

Profile: 20B0117R	Page No.: 2
Engineer: Yingfei.Wang	
Site: TR1	Time: 2021/01/24 - 14:35
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101044_(0.009-30MHz)	Polarity: Line
EUT: AP510CX	Power: PoE -48V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.156	28.924	19.259	-36.731	65.656	9.666	QP
2		0.156	23.553	13.887	-32.103	55.656	9.666	AV
3		0.202	33.815	24.136	-29.713	63.528	9.679	QP
4		0.202	33.268	23.589	-20.260	53.528	9.679	AV
5		0.230	25.855	16.172	-36.594	62.450	9.683	QP
6		0.230	10.388	0.705	-42.061	52.450	9.683	AV
7		0.298	34.463	24.765	-25.835	60.298	9.698	QP
8		0.298	15.906	6.208	-34.393	50.298	9.698	AV
9		0.322	39.532	29.830	-20.123	59.655	9.702	QP
10	*	0.322	39.178	29.476	-10.477	49.655	9.702	AV
11		2.770	21.308	11.480	-34.692	56.000	9.828	QP
12		2.770	12.080	2.251	-33.920	46.000	9.828	AV

Note:
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp). Test Photograph.

4.2 Radiated Emissions — VERDICT: PASS

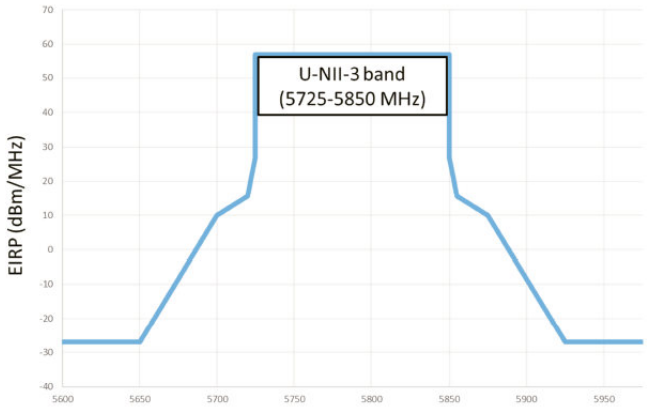
4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207		
Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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
8.81425 – 8.81475	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	
13.36 – 13.41			

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

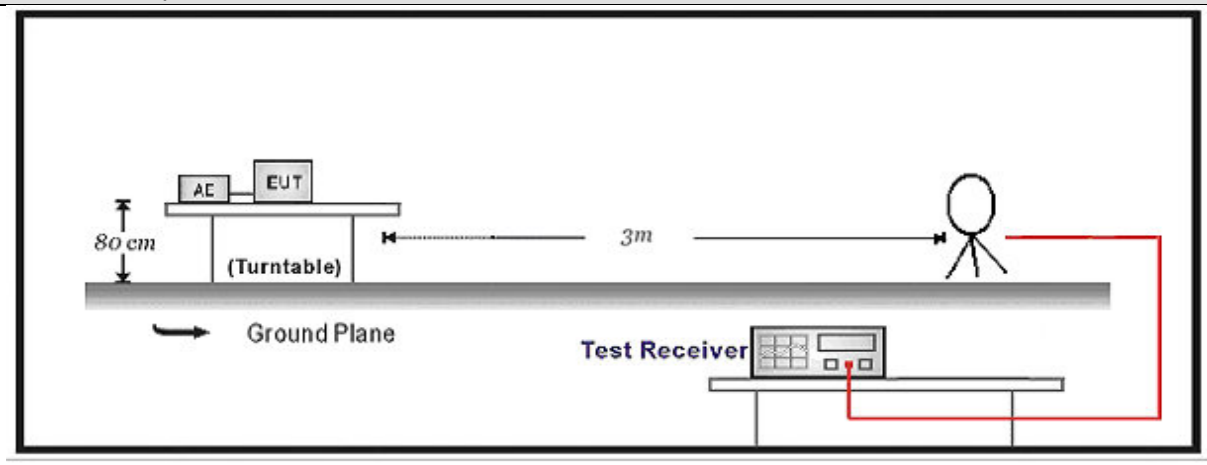
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

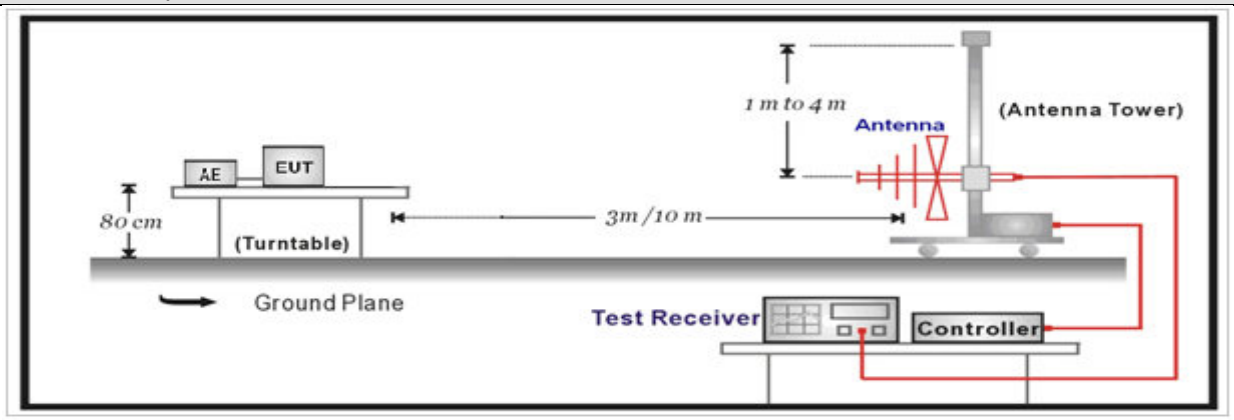
FCC Part 15 Subpart C Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	
5725 - 5850		

4.2.2 Test Setup

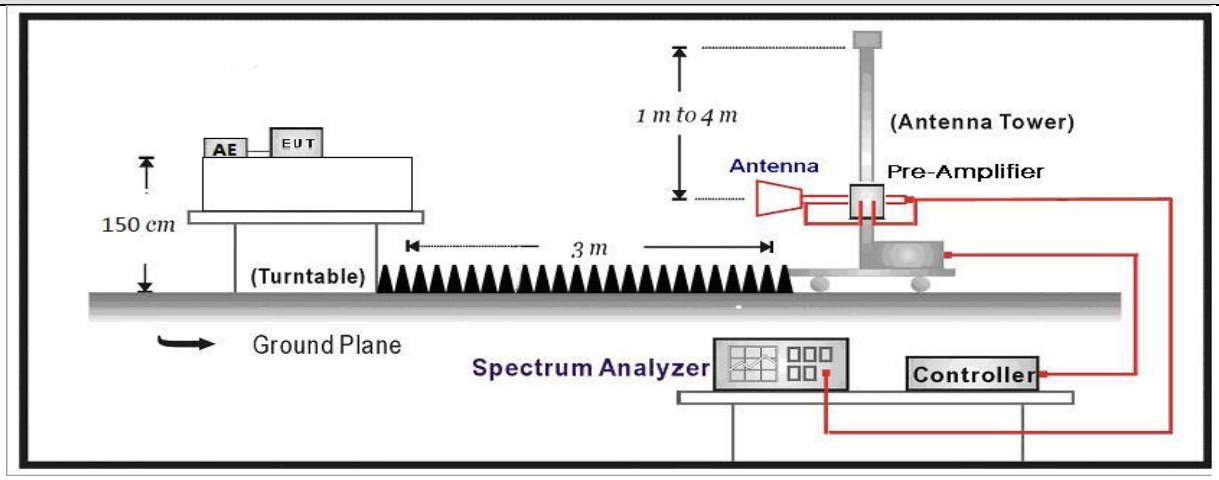
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.2.3 Test Procedure

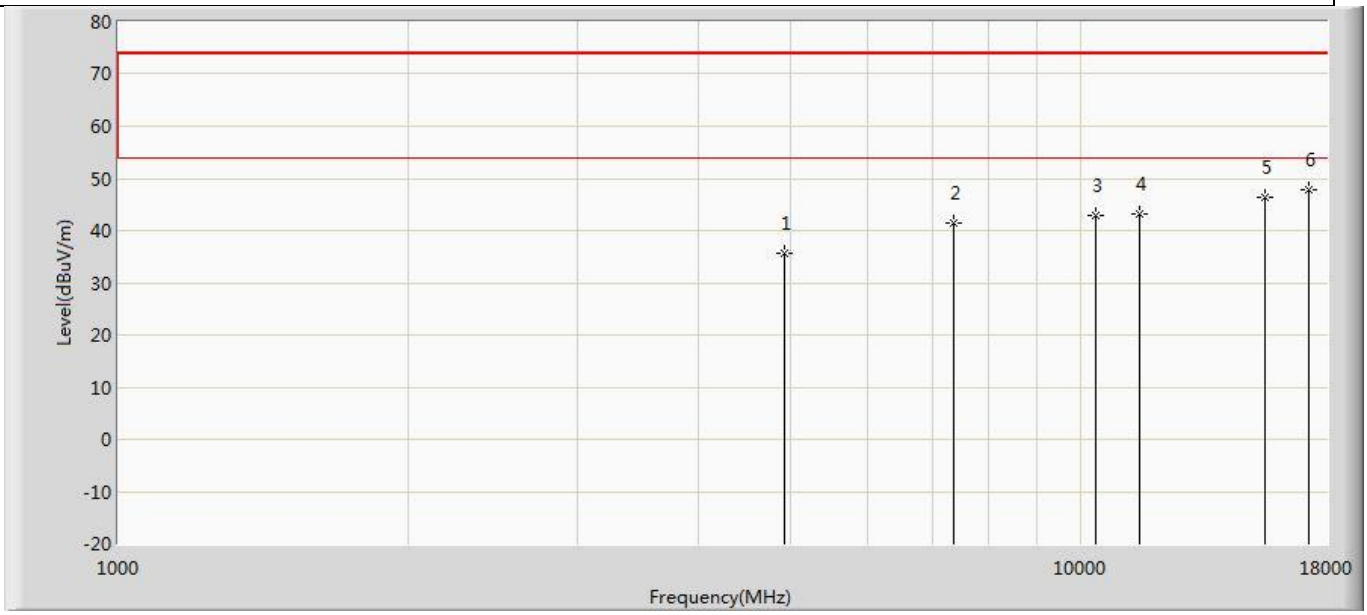
	References Rule			Chapter	Description
☒	ANSI C63.10			11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10		11.12.1	Radiated emission measurements
	☒	ANSI C63.10		11.12.2.7	Radiated spurious emission test
		☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
		☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
		☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.2.4 Test Data

Please reference to **Appdedix 1: Radiated Surprious Emission** for test data above 1GHz.

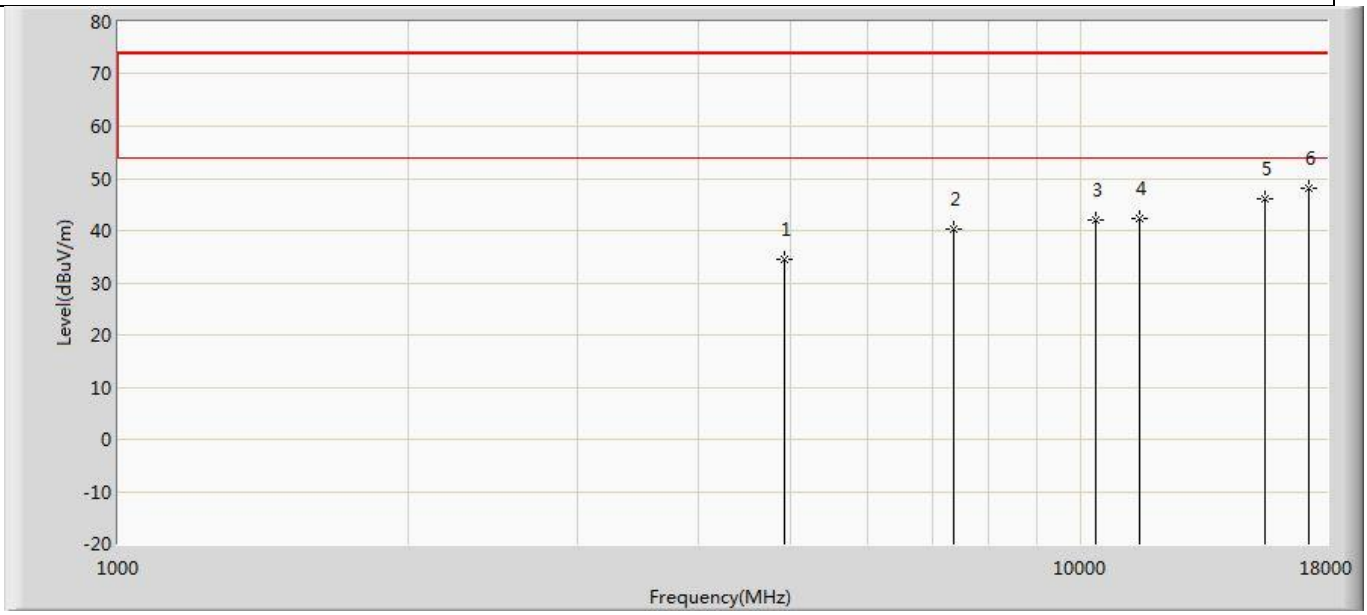
The worst case of simultaneous transmission:

Profile: 20B0117R	Page No.: 3
Engineer: Neil	
Site: AC5	Time: 2021/01/24 - 17:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: AP510CX	Power: PoE -48V
Note: Mode 11：Simultaneous transmission	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	35.543	41.470	-38.457	74.000	-5.927	PK
2		7386.000	41.406	44.441	-32.594	74.000	-3.035	PK
3		10360.000	42.764	41.903	-31.236	74.000	0.860	PK
4		11510.000	43.145	39.461	-30.855	74.000	3.684	PK
5		15540.000	46.248	39.610	-27.752	74.000	6.637	PK
6	*	17265.000	47.866	38.882	-26.134	74.000	8.984	PK

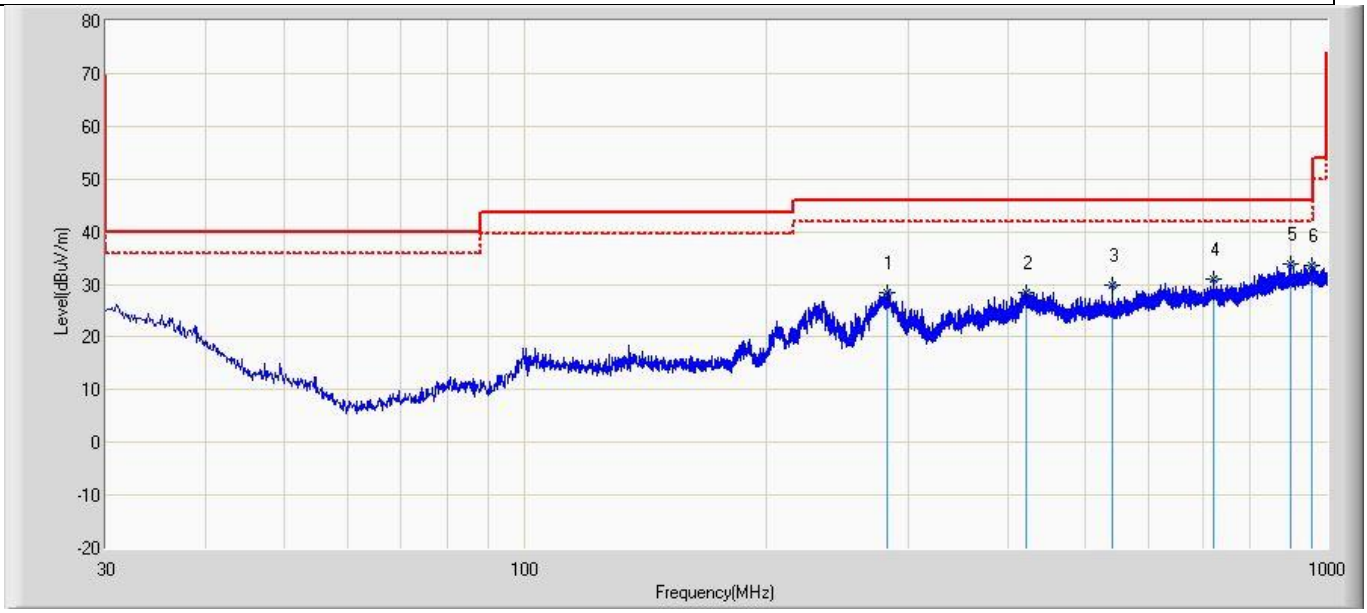
Profile: 20B0117R	Page No.: 4
Engineer: Neil	
Site: AC5	Time: 2021/01/24 - 17:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: AP510CX	Power: PoE -48V
Note: Mode 11：Simultaneous transmission	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	34.617	40.544	-39.383	74.000	-5.927	PK
2		7386.000	40.189	43.224	-33.811	74.000	-3.035	PK
3		10360.000	41.901	41.040	-32.099	74.000	0.860	PK
4		11510.000	42.199	38.515	-31.801	74.000	3.684	PK
5		15540.000	45.982	39.344	-28.018	74.000	6.637	PK
6	*	17265.000	48.224	39.240	-25.776	74.000	8.984	PK

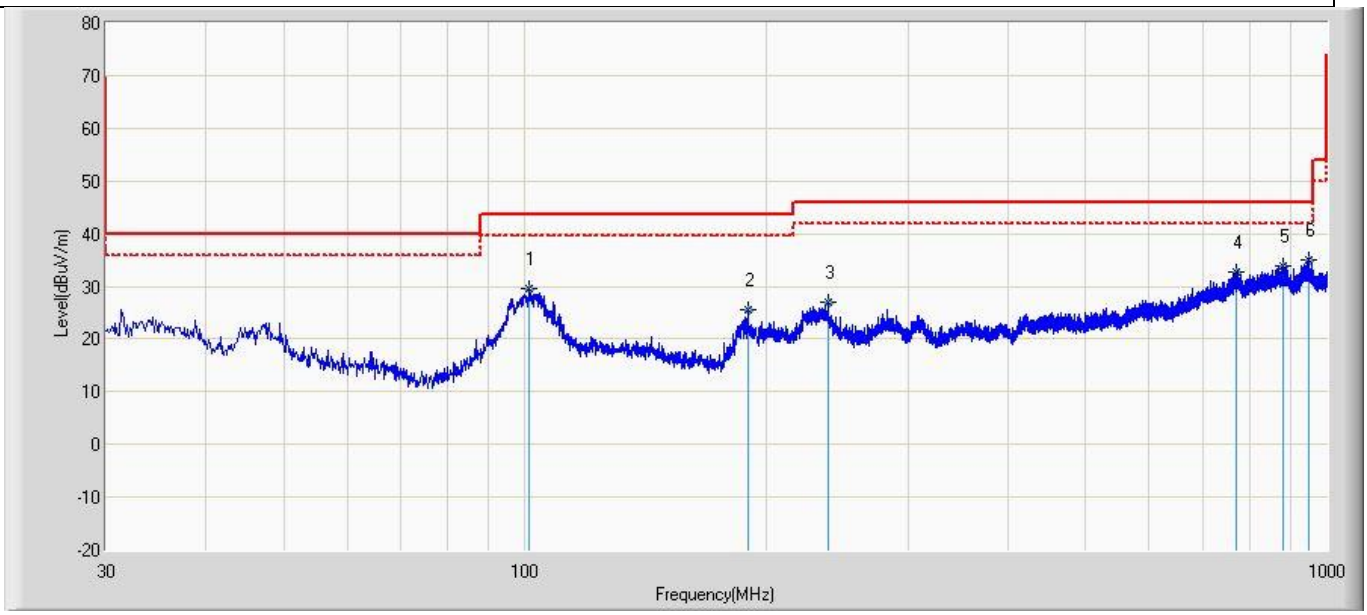
The worst case of Radiated Emission below 1GHz:

Profile: 20B0117R	Page No.: 12
Engineer: Yingfei.Wang	
Site: AC3	Time: 2021/01/24 - 18:44
Limit: FCC_Part15.209_RE(3m)	Margin: 4
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: AP510CX	Power: PoE -48V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		282.321	28.498	7.704	-18.502	47.000	20.794	QP
2		422.001	28.365	1.209	-18.635	47.000	27.156	QP
3		539.129	29.946	3.622	-17.054	47.000	26.324	QP
4		723.065	31.106	1.705	-15.894	47.000	29.402	QP
5	*	902.636	33.894	1.994	-13.106	47.000	31.899	QP
6		958.654	33.471	0.832	-13.529	47.000	32.639	QP

Profile: 20B0117R	Page No.: 13
Engineer: Yingfei.Wang	
Site: AC3	Time: 2021/01/24 - 18:46
Limit: FCC_Part15.209_RE(3m)	Margin: 4
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: AP510CX	Power: PoE -48V
Note: Mode 1	



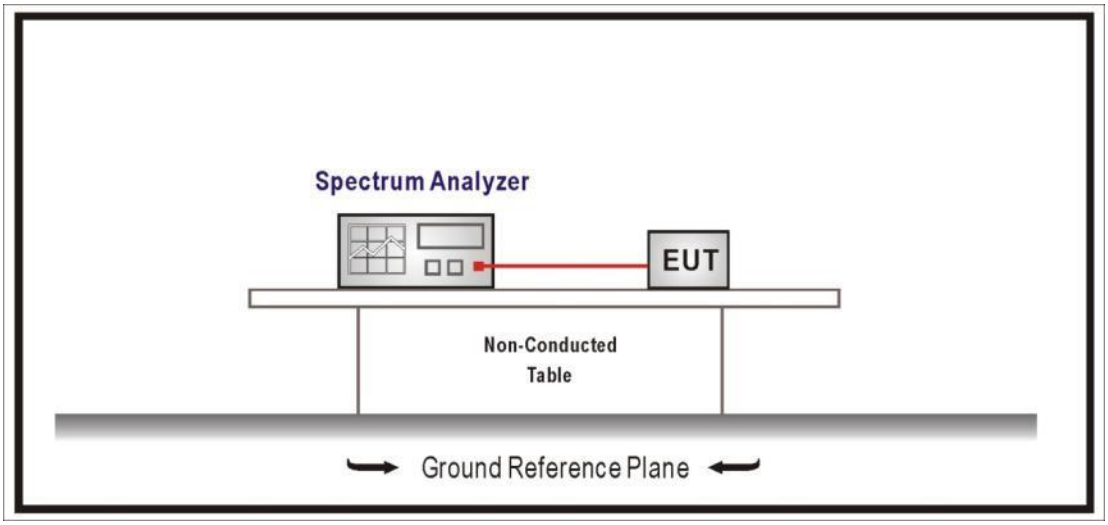
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	101.174	29.639	7.621	-10.361	40.000	22.018	QP
2		189.322	25.432	4.392	-14.568	40.000	21.039	QP
3		238.671	26.964	3.922	-20.036	47.000	23.042	QP
4		770.110	32.650	0.390	-14.350	47.000	32.260	QP
5		879.841	34.002	1.312	-12.998	47.000	32.690	QP
6		948.347	35.151	0.245	-11.849	47.000	34.906	QP

Note:
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).
3. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.

4.3 Emission bandwidth	VERDICT: N/A

4.3.1 Limit	
Standard	FCC CFR Title 47 Part 15 Subpart E: Section 15.407
N/A	

4.3.2 Test Setup



4.3.3 Test Procedure

References Rule			Chapter	Description
☒	FCC KDB 789033 D02v02r01		C	Bandwidth Measurement
	☒	FCC KDB 789033 D02v02r01	C.1	Emission Bandwidth (26dB)
	☐	FCC KDB 789033 D02v02r01	C.2	Minimum Emission Bandwidth for the band 5.725-5.85 GHz (6dB)
☐	FCC KDB 789033 D02v02r01		D	99 Percent Occupied Bandwidth

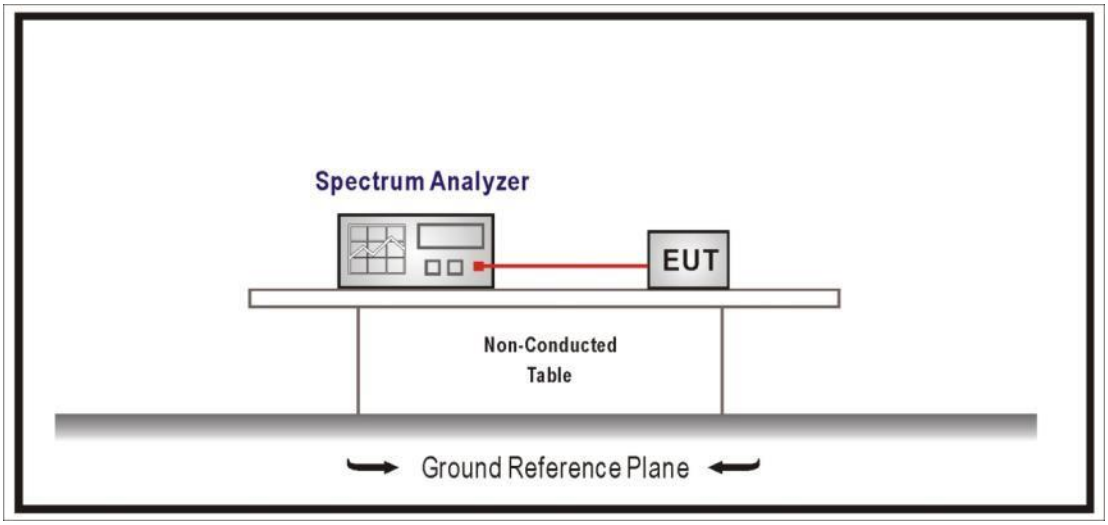
4.3.4 Test Data

N/A

4.4 6dB bandwidth	VERDICT: N/A

4.4.1 Limit	
Standard	FCC CFR Title 47 Part 15 Subpart E: Section 15.407(e)
6dB Bandwith ≥500KHz	

4.4.2 Test Setup



4.4.3 Test Procedure

References Rule		Chapter	Description
☒	FCC KDB 789033 D02v02r01	C	Bandwidth Measurement
	☐ FCC KDB 789033 D02v02r01	C.1	Emission Bandwidth (26dB)
	☒ FCC KDB 789033 D02v02r01	C.2	Minimum Emission Bandwidth for the band 5.725-5.85 GHz (6dB)
☐	FCC KDB 789033 D02v02r01	D	99 Percent Occupied Bandwidth

4.4.4 Test Data

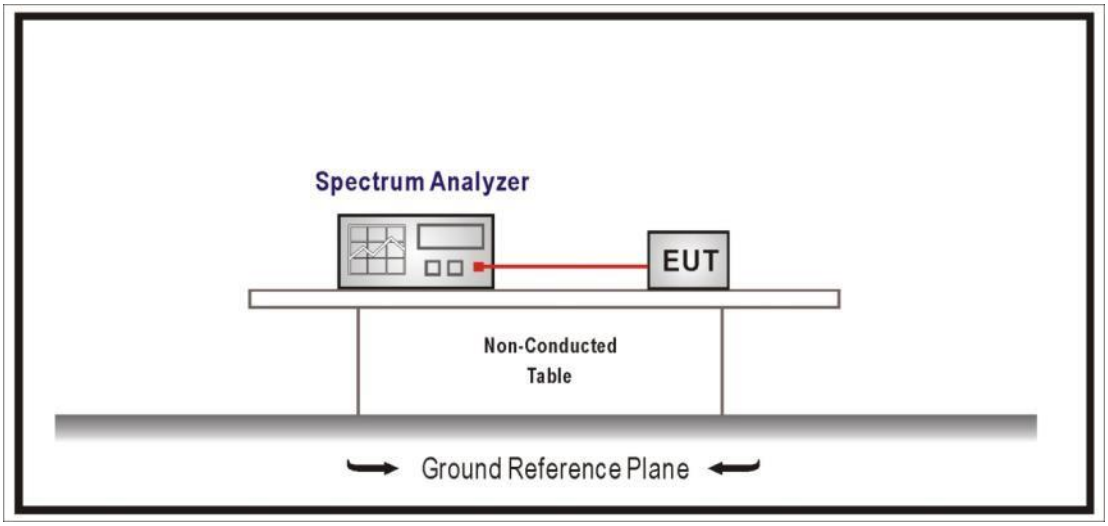
N/A

4.5 Duty cycle	VERDICT: PASS

4.5.1 Limit

N/A

4.5.2 Test Setup



4.5.3 Test Procedure

References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

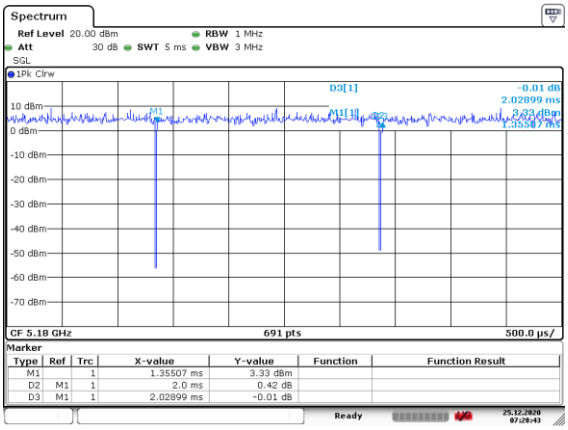
4.5.4 Test Data

Test Mode	Tx On (ms)	VBW (kHz)	Tx On + Tx Off (ms)	Duty Cycle
1	2.00	0.01	2.03	98.57%
2	0.50	2.00	0.52	95.58%
3	0.27	5.00	0.29	94.95%
4	0.50	2.00	0.53	95.60%
5	0.28	5.00	0.29	94.56%
6	0.16	10.00	0.17	91.53%
7	0.42	3.00	0.45	94.48%
8	0.25	5.00	0.27	94.08%
9	0.16	10.00	0.18	91.06%
10	0.13	10.00	0.14	90.63%

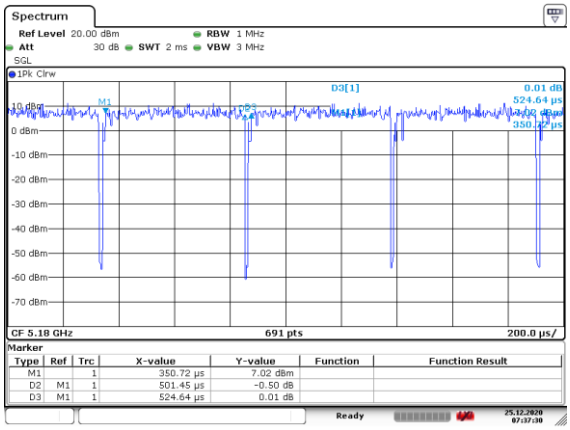
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.

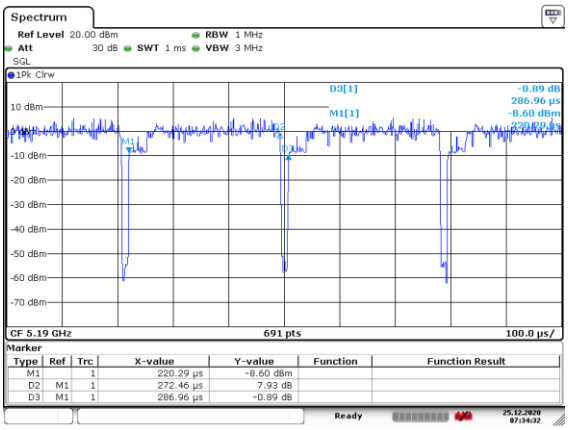
Mode 1



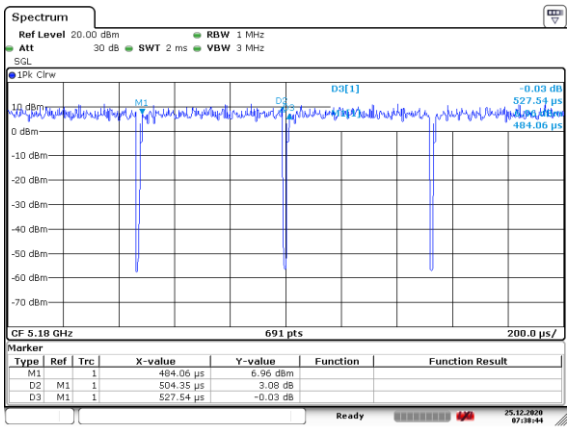
Mode 2



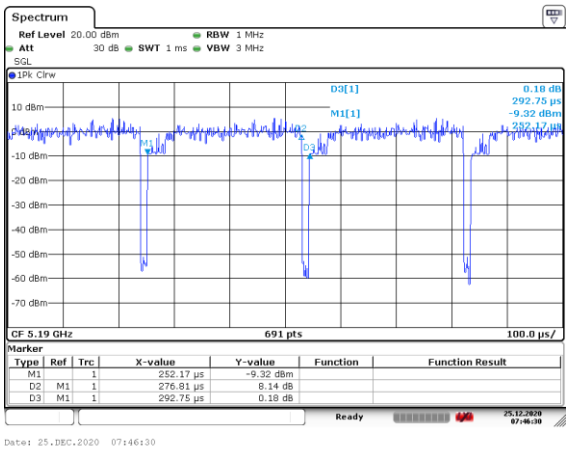
Mode 3



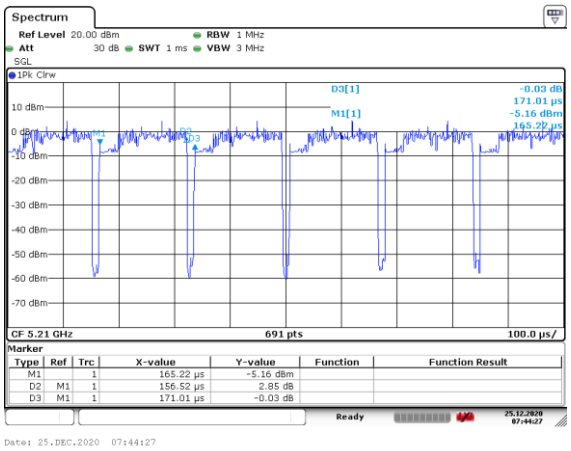
Mode 4



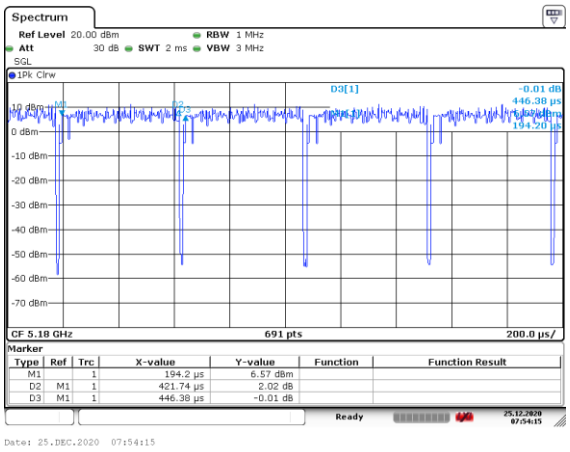
Mode 5



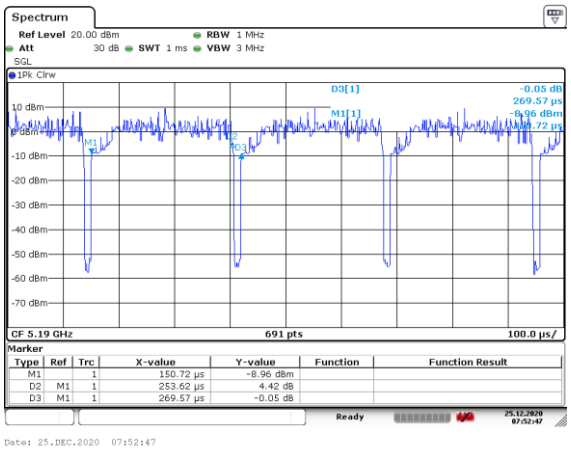
Mode 6



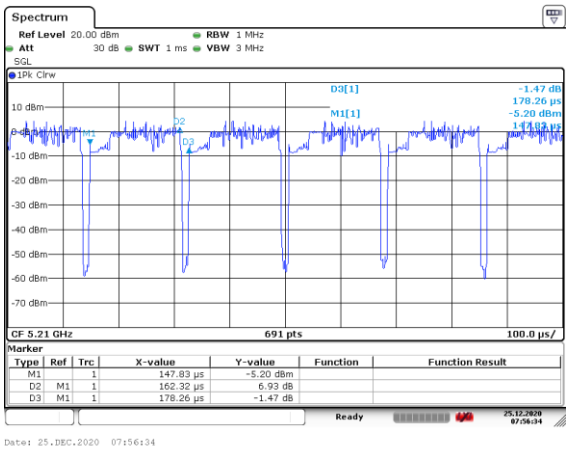
Mode 7



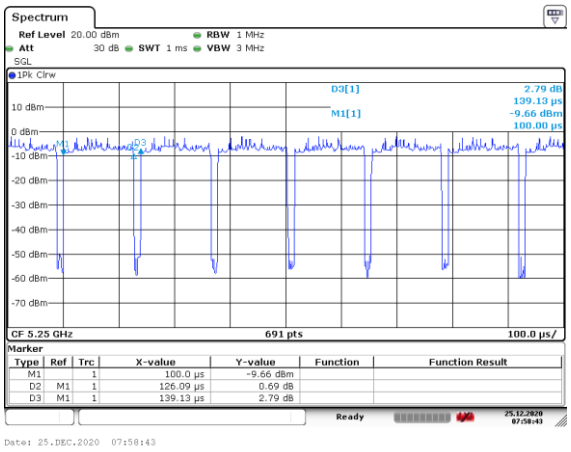
Mode 8



Mode 9



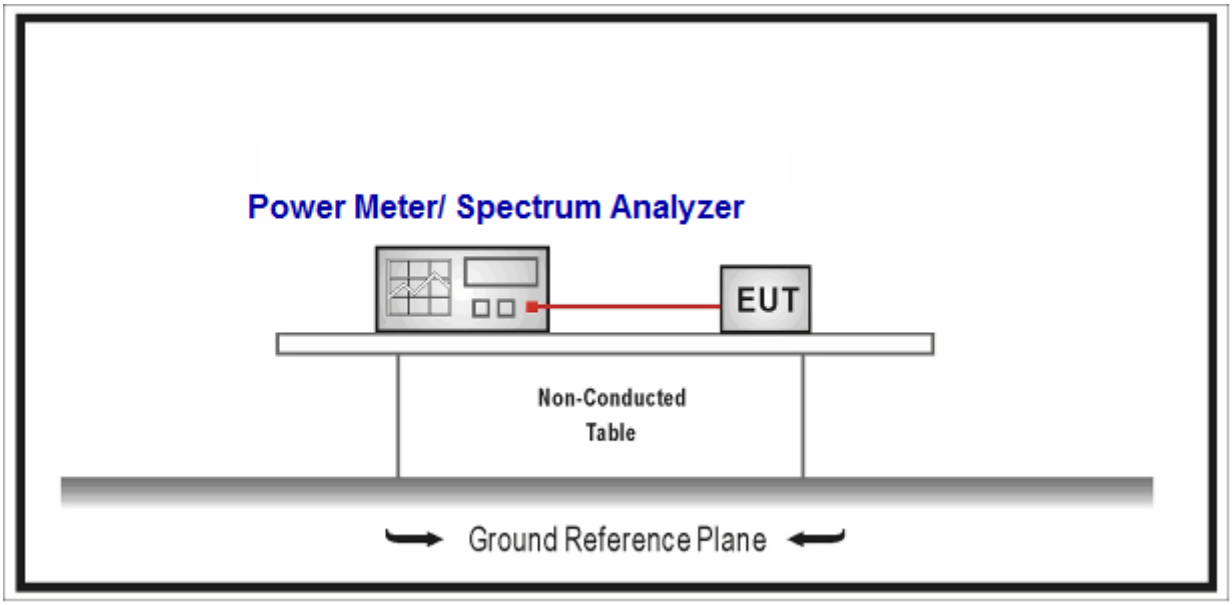
Mode 10



4.6 Power Output	VERDICT: PASS

4.6.1 Limit		
Standard		FCC CFR Title 47 Part 15 Subpart C&E
☒	For the band 5.15-5.25 GHz	
	☐	Outdoor access point: the maximum conducted output power shall not exceed 1 W. If G_{TX}＞6dBi, then Pout≤30 - (G_{TX} - 6) and ≤125mW at any angle above 30 degrees
	☒	Indoor access point: the maximum conducted output power shall not exceed 1 W. If G_{TX}＞6dBi, then Pout≤30 - (G_{TX} - 6)
	☐	Fixed point-to-point access points: the maximum conducted output power shall not exceed 1 W. If G_{TX}＞23dBi, then Pout≤30 - (G_{TX} - 23)
	☐	Mobile and portable client devices: the maximum conducted output power shall not exceed 250mW. If G_{TX}＞6dBi, then Pout≤24 - (G_{TX} - 6)
☒	For the band 5.25-5.35 GHz:	
	☒	The maximum conducted output power shall not exceed 250mW or 11dBm+10 Log B, where B is the 26dB emission bandwidth in MHz. If G_{TX} ＞ 6dBi, then Pout ≤ (The lesser of 24 or 11dBm+10 Log B) - (GTX - 6)
☒	For the 5.47-5.725 GHz:	
	☒	The maximum conducted output power shall not exceed 250mW or 11dBm+10 Log B, where B is the 26dB emission bandwidth in MHz. If G_{TX}＞6dBi, then Pout ≤ (The lesser of 24 or 11dBm+10 Log B) - (G_{TX} - 6)
☒	For the band 5.725-5.85 GHz:	
	☒	Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6)
	☐	Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W
Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .		

4.6.2 Test Setup



4.6.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		12.3	Maximum conducted output power
	☒	ANSI C63.10	12.3.2	Maximum conducted output power measurement using a spectrum analyzer (SA) or EMI receiver
		☐ ANSI C63.10	12.3.2.2	Method SA-1
		☐ ANSI C63.10	12.3.2.3	Method SA-1A (alternative)
		☒ ANSI C63.10	12.3.2.4	Method SA-2
		☐ ANSI C63.10	12.3.2.5	Method SA-2A (alternative)
		☐ ANSI C63.10	12.3.2.6	Method SA-3
		☐ ANSI C63.10	12.3.2.7	Method SA-3A (alternative)
	☒	ANSI C63.10	12.3.3	Maximum conducted output power using a power meter
		☐ ANSI C63.10	12.3.3.1	Method PM
		☒ ANSI C63.10	12.3.3.2	Method PM-G

Directional Gain Calculations for In-Band test method				
	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☒	KDB 662911		F2)e)	Spatial stream
	☒	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☒	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)f) (iii)	Antenna have the different gain with more than one spatial stream

4.6.4 Test Data

Please reference to **Appendix 2: Wi-Fi 5G Power Table**.

4.7 Peak Power Spectral Density — VERDICT: PASS

4.7.1 Limit:

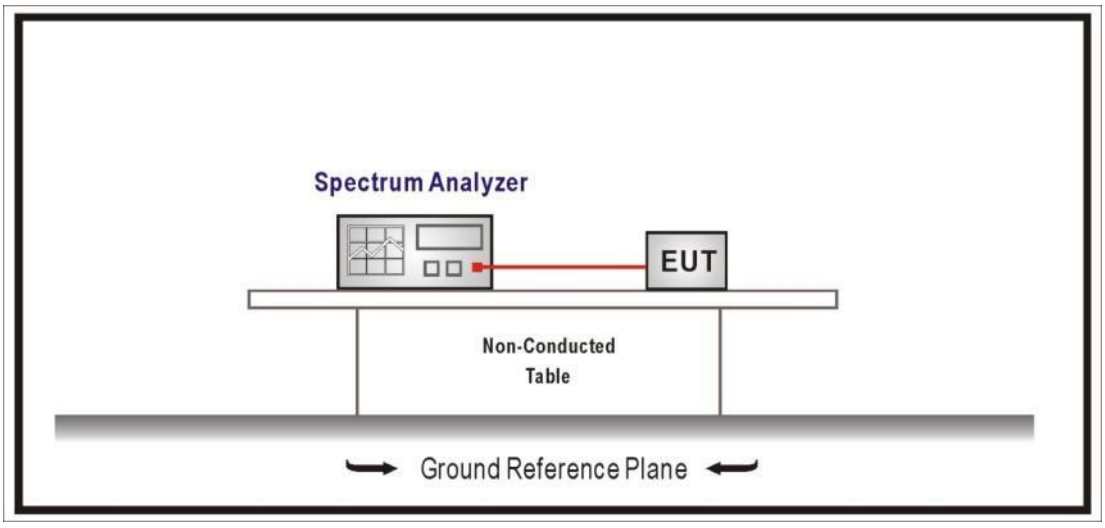
Standard	FCC CFR Title 47 Part 15 Subpart C&E

Fundamental emission output power Limit

☒	For the band 5.15-5.25 GHz	
	☐	Outdoor access point: the maximum power spectral density shall not exceed 17 dBm/MHz. If G_{TX}>6dBi, then Pout≤17 - (G_{TX} - 6)
	☒	Indoor access point: the maximum power spectral density shall not exceed 17 dBm/MHz. If G_{TX}>6dBi, then Pout≤17 - (G_{TX} - 6)
	☐	Fixed point-to-point access points: the maximum power spectral density shall not exceed 17 dBm/MHz. If G_{TX}>23dBi, then Pout≤17 - (G_{TX} - 23)
	☐	Mobile and portable client devices: the maximum power spectral density shall not exceed 11 dBm/MHz. If G_{TX}>6dBi, then Pout≤11 - (G_{TX} - 6)
☒	For the 5.25-5.35 GHz:	
	☒	The maximum power spectral density shall not exceed 11 dBm/MHz. If G_{TX}>6dBi, then Pout≤11 - (G_{TX} - 6)
☒	For the 5.47-5.725 GHz:	
	☒	The maximum power spectral density shall not exceed 11 dBm/MHz.If G_{TX}>6dBi, then Pout≤11 - (G_{TX} - 6)
☒	For the band 5.725-5.85 GHz:	
	☒	The maximum power spectral density shall not exceed 30 dBm/500KHz. If G_{TX}>6dBi, then Pout≤30 - (G_{TX} - 6)

Note 1: GTX directional gain of transmitting antennas.
Note 2: Pout is maximum peak conducted output power.

4.7.2 Test Setup



4.7.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	12.5	Peak power spectral density
☒	FCC KDB 789033 D02v02r01	F	Maximum Power Spectral Density (PSD)

Directional Gain Calculations for In-Band test method				
	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☒	KDB 662911		F2)e)	Spatial stream
	☒	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☒	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)f) (iii)	Antenna have the different gain with more than one spatial stream

4.7.4 Test Data

Dipole Antenna-ETH6 CDD 2TX

Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	5.94	≤13.99	Pass
	44	5220	6.60	≤13.99	Pass
	48	5240	5.46	≤13.99	Pass
	52	5260	4.41	≤7.99	Pass
	60	5300	4.24	≤7.99	Pass
	64	5320	4.33	≤7.99	Pass
	100	5500	4.20	≤7.99	Pass
	116	5580	3.99	≤7.99	Pass
	140	5700	4.14	≤7.99	Pass
	149	5745	5.57	≤26.99	Pass
	157	5785	5.52	≤26.99	Pass
	165	5825	5.29	≤26.99	Pass
2	36	5180	5.56	≤13.99	Pass
	44	5220	6.09	≤13.99	Pass
	48	5240	5.18	≤13.99	Pass
	52	5260	4.21	≤7.99	Pass
	60	5300	4.16	≤7.99	Pass
	64	5320	4.31	≤7.99	Pass
	100	5500	4.09	≤7.99	Pass
	116	5580	3.93	≤7.99	Pass
	140	5700	4.05	≤7.99	Pass
	149	5745	5.15	≤26.99	Pass
	157	5785	4.80	≤26.99	Pass
	165	5825	5.25	≤26.99	Pass
3	38	5190	2.00	≤13.99	Pass
	46	5230	1.97	≤13.99	Pass
	54	5270	1.54	≤7.99	Pass
	62	5310	1.99	≤7.99	Pass
	102	5510	1.84	≤7.99	Pass
	110	5550	1.99	≤7.99	Pass
	134	5670	2.02	≤7.99	Pass
	151	5755	1.56	≤26.99	Pass
	159	5795	1.83	≤26.99	Pass

Dipole Antenna-ETH6 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	5.90	≤13.99	Pass
	44	5220	6.11	≤13.99	Pass
	48	5240	5.83	≤13.99	Pass
	52	5260	4.27	≤7.99	Pass
	60	5300	4.07	≤7.99	Pass
	64	5320	4.32	≤7.99	Pass
	100	5500	3.97	≤7.99	Pass
	116	5580	3.70	≤7.99	Pass
	140	5700	3.88	≤7.99	Pass
	149	5745	5.09	≤26.99	Pass
	157	5785	5.31	≤26.99	Pass
	165	5825	5.36	≤26.99	Pass
5	38	5190	1.77	≤13.99	Pass
	46	5230	1.67	≤13.99	Pass
	54	5270	1.54	≤7.99	Pass
	62	5310	2.17	≤7.99	Pass
	102	5510	1.81	≤7.99	Pass
	110	5550	2.22	≤7.99	Pass
	134	5670	1.88	≤7.99	Pass
	151	5755	1.20	≤26.99	Pass
	159	5795	1.87	≤26.99	Pass
6	42	5210	-0.5	≤13.99	Pass
	58	5290	-0.70	≤7.99	Pass
	106	5530	-0.34	≤7.99	Pass
	155	5775	-0.97	≤26.99	Pass

Dipole Antenna-ETH6 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	5.73	≤13.99	Pass
	44	5220	6.24	≤13.99	Pass
	48	5240	5.72	≤13.99	Pass
	52	5260	4.37	≤7.99	Pass
	60	5300	4.27	≤7.99	Pass
	64	5320	4.44	≤7.99	Pass
	100	5500	3.95	≤7.99	Pass
	116	5580	4.17	≤7.99	Pass
	140	5700	3.95	≤7.99	Pass
	149	5745	5.60	≤26.99	Pass
	157	5785	5.01	≤26.99	Pass
	165	5825	5.02	≤26.99	Pass
8	38	5190	2.12	≤13.99	Pass
	46	5230	1.72	≤13.99	Pass
	54	5270	1.50	≤7.99	Pass
	62	5310	2.03	≤7.99	Pass
	102	5510	2.08	≤7.99	Pass
	110	5550	2.22	≤7.99	Pass
	134	5670	1.88	≤7.99	Pass
	151	5755	1.22	≤26.99	Pass
	159	5795	1.75	≤26.99	Pass
9	42	5210	-0.51	≤13.99	Pass
	58	5290	-0.51	≤7.99	Pass
	106	5530	-0.31	≤7.99	Pass
	155	5775	-1.19	≤26.99	Pass
10	50	5250	-7.51	≤7.99	Pass
	114	5570	-4.84	≤7.99	Pass

Dipole Antenna- ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	2.67	≤13.99	Pass
	44	5220	2.97	≤13.99	Pass
	48	5240	2.71	≤13.99	Pass
	52	5260	1.43	≤7.99	Pass
	60	5300	1.71	≤7.99	Pass
	64	5320	2.24	≤7.99	Pass
	100	5500	1.26	≤7.99	Pass
	116	5580	0.79	≤7.99	Pass
	140	5700	0.83	≤7.99	Pass
	149	5745	4.94	≤26.99	Pass
	157	5785	4.96	≤26.99	Pass
	165	5825	4.88	≤26.99	Pass
3	38	5190	0.18	≤13.99	Pass
	46	5230	0.40	≤13.99	Pass
	54	5270	-0.83	≤7.99	Pass
	62	5310	-0.63	≤7.99	Pass
	102	5510	-1.00	≤7.99	Pass
	110	5550	-1.13	≤7.99	Pass
	134	5670	-1.09	≤7.99	Pass
	151	5755	1.32	≤26.99	Pass
	159	5795	1.71	≤26.99	Pass

Dipole Antenna- ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	2.74	≤13.99	Pass
	44	5220	2.81	≤13.99	Pass
	48	5240	3.02	≤13.99	Pass
	52	5260	1.56	≤7.99	Pass
	60	5300	2.04	≤7.99	Pass
	64	5320	2.32	≤7.99	Pass
	100	5500	1.18	≤7.99	Pass
	116	5580	0.87	≤7.99	Pass
	140	5700	0.66	≤7.99	Pass
	149	5745	5.17	≤26.99	Pass
	157	5785	5.08	≤26.99	Pass
	165	5825	5.40	≤26.99	Pass
5	38	5190	-0.07	≤13.99	Pass
	46	5230	0.27	≤13.99	Pass
	54	5270	-0.93	≤7.99	Pass
	62	5310	-0.77	≤7.99	Pass
	102	5510	-1.32	≤7.99	Pass
	110	5550	-1.04	≤7.99	Pass
	134	5670	-1.34	≤7.99	Pass
	151	5755	1.39	≤26.99	Pass
	159	5795	1.53	≤26.99	Pass
6	42	5210	-3.78	≤13.99	Pass
	58	5290	-3.76	≤7.99	Pass
	106	5530	-4.06	≤7.99	Pass
	155	5775	-0.95	≤26.99	Pass

Dipole Antenna-ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	2.84	≤13.99	Pass
	44	5220	2.92	≤13.99	Pass
	48	5240	3.04	≤13.99	Pass
	52	5260	1.48	≤7.99	Pass
	60	5300	1.55	≤7.99	Pass
	64	5320	2.22	≤7.99	Pass
	100	5500	1.03	≤7.99	Pass
	116	5580	0.92	≤7.99	Pass
	140	5700	0.73	≤7.99	Pass
	149	5745	5.25	≤26.99	Pass
	157	5785	5.12	≤26.99	Pass
	165	5825	5.29	≤26.99	Pass
8	38	5190	-0.03	≤13.99	Pass
	46	5230	0.13	≤13.99	Pass
	54	5270	-1.24	≤7.99	Pass
	62	5310	-0.69	≤7.99	Pass
	102	5510	-1.22	≤7.99	Pass
	110	5550	-0.97	≤7.99	Pass
	134	5670	-1.16	≤7.99	Pass
	151	5755	1.63	≤26.99	Pass
	159	5795	1.88	≤26.99	Pass
9	42	5210	-3.74	≤13.99	Pass
	58	5290	-3.65	≤7.99	Pass
	106	5530	-3.81	≤7.99	Pass
	155	5775	-1.20	≤26.99	Pass
10	50	5250	-9.54	≤7.99	Pass
	114	5570	-6.94	≤7.99	Pass

Dipole Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	3.34	≤10.98	Pass
	44	5220	3.33	≤10.98	Pass
	48	5240	2.91	≤10.98	Pass
	52	5260	-2.08	≤4.98	Pass
	60	5300	-2.26	≤4.98	Pass
	64	5320	-1.77	≤4.98	Pass
	100	5500	-1.98	≤4.98	Pass
	116	5580	-2.15	≤4.98	Pass
	140	5700	-2.16	≤4.98	Pass
	149	5745	2.92	≤23.98	Pass
	157	5785	2.70	≤23.98	Pass
	165	5825	2.55	≤23.98	Pass
2	36	5180	3.68	≤10.98	Pass
	44	5220	4.27	≤10.98	Pass
	48	5240	4.00	≤10.98	Pass
	52	5260	-2.09	≤4.98	Pass
	60	5300	-1.90	≤4.98	Pass
	64	5320	-2.05	≤4.98	Pass
	100	5500	-2.12	≤4.98	Pass
	116	5580	-2.31	≤4.98	Pass
	140	5700	-2.16	≤4.98	Pass
	149	5745	1.47	≤23.98	Pass
	157	5785	1.38	≤23.98	Pass
	165	5825	1.35	≤23.98	Pass
3	38	5190	-1.86	≤10.98	Pass
	46	5230	-1.89	≤10.98	Pass
	54	5270	-2.35	≤4.98	Pass
	62	5310	-1.93	≤4.98	Pass
	102	5510	-2.32	≤4.98	Pass
	110	5550	-2.15	≤4.98	Pass
	134	5670	-2.11	≤4.98	Pass
	151	5755	-0.86	≤23.98	Pass
	159	5795	-2.45	≤23.98	Pass

Dipole Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	3.75	≤10.98	Pass
	44	5220	3.96	≤10.98	Pass
	48	5240	3.72	≤10.98	Pass
	52	5260	-1.92	≤4.98	Pass
	60	5300	-2.03	≤4.98	Pass
	64	5320	-1.97	≤4.98	Pass
	100	5500	-1.57	≤4.98	Pass
	116	5580	-2.52	≤4.98	Pass
	140	5700	-2.01	≤4.98	Pass
	149	5745	2.07	≤23.98	Pass
	157	5785	0.71	≤23.98	Pass
	165	5825	0.66	≤23.98	Pass
5	38	5190	-2.14	≤10.98	Pass
	46	5230	-1.82	≤10.98	Pass
	54	5270	-2.35	≤4.98	Pass
	62	5310	-1.74	≤4.98	Pass
	102	5510	-2.28	≤4.98	Pass
	110	5550	-2.42	≤4.98	Pass
	134	5670	-2.06	≤4.98	Pass
	151	5755	-0.60	≤23.98	Pass
	159	5795	-2.30	≤23.98	Pass
6	42	5210	-6.22	≤10.98	Pass
	58	5290	-5.79	≤4.98	Pass
	106	5530	-5.79	≤4.98	Pass
	155	5775	-3.16	≤23.98	Pass

Dipole Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	3.59	≤10.98	Pass
	44	5220	4.14	≤10.98	Pass
	48	5240	3.79	≤10.98	Pass
	52	5260	-1.92	≤4.98	Pass
	60	5300	-1.95	≤4.98	Pass
	64	5320	-1.95	≤4.98	Pass
	100	5500	-2.04	≤4.98	Pass
	116	5580	-2.52	≤4.98	Pass
	140	5700	-2.14	≤4.98	Pass
	149	5745	1.80	≤23.98	Pass
	157	5785	0.82	≤23.98	Pass
	165	5825	0.55	≤23.98	Pass
8	38	5190	-2.15	≤10.98	Pass
	46	5230	-1.95	≤10.98	Pass
	54	5270	-2.36	≤4.98	Pass
	62	5310	-1.92	≤4.98	Pass
	102	5510	-2.33	≤4.98	Pass
	110	5550	-2.14	≤4.98	Pass
	134	5670	-2.50	≤4.98	Pass
	151	5755	-0.07	≤23.98	Pass
	159	5795	-2.00	≤23.98	Pass
9	42	5210	-6.40	≤10.98	Pass
	58	5290	-5.76	≤4.98	Pass
	106	5530	-5.72	≤4.98	Pass
	155	5775	-3.18	≤23.98	Pass
10	50	5250	-10.36	≤4.98	Pass
	114	5570	-7.81	≤4.98	Pass

Dipole Antenna- ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	-2.58	≤10.98	Pass
	44	5220	-2.26	≤10.98	Pass
	48	5240	-2.72	≤10.98	Pass
	52	5260	-4.04	≤4.98	Pass
	60	5300	-4.22	≤4.98	Pass
	64	5320	-3.59	≤4.98	Pass
	100	5500	-3.53	≤4.98	Pass
	116	5580	-3.82	≤4.98	Pass
	140	5700	-4.37	≤4.98	Pass
	149	5745	1.62	≤23.98	Pass
	157	5785	1.46	≤23.98	Pass
	165	5825	1.21	≤23.98	Pass
3	38	5190	-5.82	≤10.98	Pass
	46	5230	-5.82	≤10.98	Pass
	54	5270	-6.35	≤4.98	Pass
	62	5310	-6.17	≤4.98	Pass
	102	5510	-6.63	≤4.98	Pass
	110	5550	-6.28	≤4.98	Pass
	134	5670	-6.67	≤4.98	Pass
	151	5755	-0.67	≤23.98	Pass
	159	5795	-2.41	≤23.98	Pass

Dipole Antenna- ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	-2.60	≤10.98	Pass
	44	5220	-2.46	≤10.98	Pass
	48	5240	-2.34	≤10.98	Pass
	52	5260	-4.08	≤4.98	Pass
	60	5300	-4.07	≤4.98	Pass
	64	5320	-3.87	≤4.98	Pass
	100	5500	-3.56	≤4.98	Pass
	116	5580	-3.84	≤4.98	Pass
	140	5700	-4.28	≤4.98	Pass
	149	5745	2.11	≤23.98	Pass
	157	5785	0.93	≤23.98	Pass
	165	5825	0.69	≤23.98	Pass
5	38	5190	-5.68	≤10.98	Pass
	46	5230	-5.70	≤10.98	Pass
	54	5270	-6.41	≤4.98	Pass
	62	5310	-5.83	≤4.98	Pass
	102	5510	-6.76	≤4.98	Pass
	110	5550	-6.44	≤4.98	Pass
	134	5670	-6.77	≤4.98	Pass
	151	5755	-0.40	≤23.98	Pass
	159	5795	-2.51	≤23.98	Pass
6	42	5210	-8.27	≤10.98	Pass
	58	5290	-8.16	≤4.98	Pass
	106	5530	-8.54	≤4.98	Pass
	155	5775	-3.04	≤23.98	Pass

Dipole Antenna-ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	-2.78	≤10.98	Pass
	44	5220	-2.11	≤10.98	Pass
	48	5240	-2.10	≤10.98	Pass
	52	5260	-4.17	≤4.98	Pass
	60	5300	-4.20	≤4.98	Pass
	64	5320	-3.63	≤4.98	Pass
	100	5500	-3.65	≤4.98	Pass
	116	5580	-3.87	≤4.98	Pass
	140	5700	-4.27	≤4.98	Pass
	149	5745	1.72	≤23.98	Pass
	157	5785	0.72	≤23.98	Pass
	165	5825	0.89	≤23.98	Pass
8	38	5190	-5.77	≤10.98	Pass
	46	5230	-5.75	≤10.98	Pass
	54	5270	-6.41	≤4.98	Pass
	62	5310	-5.83	≤4.98	Pass
	102	5510	-6.65	≤4.98	Pass
	110	5550	-6.45	≤4.98	Pass
	134	5670	-6.66	≤4.98	Pass
	151	5755	-0.67	≤23.98	Pass
	159	5795	-2.00	≤23.98	Pass
9	42	5210	-8.43	≤10.98	Pass
	58	5290	-7.82	≤4.98	Pass
	106	5530	-8.56	≤4.98	Pass
	155	5775	-3.31	≤23.98	Pass
10	50	5250	-12.84	≤4.98	Pass
	114	5570	-12.01	≤4.98	Pass

Dipole Antenna-ETH7 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	5.88	≤13.99	Pass
	44	5220	6.48	≤13.99	Pass
	48	5240	5.78	≤13.99	Pass
	52	5260	4.13	≤7.99	Pass
	60	5300	4.29	≤7.99	Pass
	64	5320	4.33	≤7.99	Pass
2	36	5180	5.42	≤13.99	Pass
	44	5220	5.99	≤13.99	Pass
	48	5240	5.55	≤13.99	Pass
	52	5260	4.27	≤7.99	Pass
	60	5300	4.26	≤7.99	Pass
	64	5320	4.27	≤7.99	Pass
3	38	5190	2.09	≤13.99	Pass
	46	5230	1.79	≤13.99	Pass
	54	5270	1.64	≤7.99	Pass
	62	5310	2.03	≤7.99	Pass
4	36	5180	5.87	≤13.99	Pass
	44	5220	6.21	≤13.99	Pass
	48	5240	5.65	≤13.99	Pass
	52	5260	4.49	≤7.99	Pass
	60	5300	4.17	≤7.99	Pass
	64	5320	4.17	≤7.99	Pass
5	38	5190	1.86	≤13.99	Pass
	46	5230	1.79	≤13.99	Pass
	54	5270	1.67	≤7.99	Pass
	62	5310	1.94	≤7.99	Pass
6	42	5210	-0.41	≤13.99	Pass
	58	5290	-0.64	≤7.99	Pass

Dipole Antenna-ETH7 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	6.05	≤13.99	Pass
	44	5220	6.13	≤13.99	Pass
	48	5240	5.61	≤13.99	Pass
	52	5260	4.34	≤7.99	Pass
	60	5300	4.23	≤7.99	Pass
	64	5320	3.97	≤7.99	Pass
8	38	5190	1.93	≤13.99	Pass
	46	5230	1.94	≤13.99	Pass
	54	5270	1.05	≤7.99	Pass
	62	5310	2.28	≤7.99	Pass
9	42	5210	-0.62	≤13.99	Pass
	58	5290	-0.73	≤7.99	Pass
10	50	5250	-5.06	≤7.99	Pass

Dipole Antenna- ETH7 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	2.50	≤13.99	Pass
	44	5220	2.90	≤13.99	Pass
	48	5240	2.86	≤13.99	Pass
	52	5260	1.64	≤7.99	Pass
	60	5300	1.69	≤7.99	Pass
	64	5320	2.50	≤7.99	Pass
3	38	5190	0.12	≤13.99	Pass
	46	5230	0.31	≤13.99	Pass
	54	5270	-1.00	≤7.99	Pass
	62	5310	-0.67	≤7.99	Pass
4	36	5180	2.68	≤13.99	Pass
	44	5220	2.88	≤13.99	Pass
	48	5240	2.94	≤13.99	Pass
	52	5260	1.45	≤7.99	Pass
	60	5300	1.81	≤7.99	Pass
	64	5320	2.39	≤7.99	Pass
5	38	5190	0.26	≤13.99	Pass
	46	5230	0.17	≤13.99	Pass
	54	5270	-1.27	≤7.99	Pass
	62	5310	-0.68	≤7.99	Pass
6	42	5210	-3.60	≤13.99	Pass
	58	5290	-3.70	≤7.99	Pass

Dipole Antenna-ETH7 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	2.79	≤13.99	Pass
	44	5220	3.00	≤13.99	Pass
	48	5240	2.87	≤13.99	Pass
	52	5260	1.49	≤7.99	Pass
	60	5300	1.73	≤7.99	Pass
	64	5320	2.21	≤7.99	Pass
8	38	5190	0.12	≤13.99	Pass
	46	5230	0.03	≤13.99	Pass
	54	5270	-0.98	≤7.99	Pass
	62	5310	-0.83	≤7.99	Pass
9	42	5210	-3.67	≤13.99	Pass
	58	5290	-3.58	≤7.99	Pass
10	50	5250	-7.89	≤7.99	Pass

Dipole Antenna-ETH7 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	3.33	≤10.98	Pass
	44	5220	3.57	≤10.98	Pass
	48	5240	2.68	≤10.98	Pass
	52	5260	-2.04	≤4.98	Pass
	60	5300	-2.06	≤4.98	Pass
	64	5320	-1.68	≤4.98	Pass
2	36	5180	3.71	≤10.98	Pass
	44	5220	4.18	≤10.98	Pass
	48	5240	3.89	≤10.98	Pass
	52	5260	-1.98	≤4.98	Pass
	60	5300	-2.05	≤4.98	Pass
	64	5320	-1.88	≤4.98	Pass
3	38	5190	-1.99	≤10.98	Pass
	46	5230	-1.79	≤10.98	Pass
	54	5270	-2.19	≤4.98	Pass
	62	5310	-1.99	≤4.98	Pass
4	36	5180	3.78	≤10.98	Pass
	44	5220	4.23	≤10.98	Pass
	48	5240	4.03	≤10.98	Pass
	52	5260	-2.12	≤4.98	Pass
	60	5300	-2.04	≤4.98	Pass
	64	5320	-2.10	≤4.98	Pass
5	38	5190	-1.88	≤10.98	Pass
	46	5230	-1.90	≤10.98	Pass
	54	5270	-2.35	≤4.98	Pass
	62	5310	-2.12	≤4.98	Pass
6	42	5210	-6.14	≤10.98	Pass
	58	5290	-5.66	≤4.98	Pass

Dipole Antenna-ETH7 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	3.59	≤10.98	Pass
	44	5220	3.96	≤10.98	Pass
	48	5240	3.99	≤10.98	Pass
	52	5260	-2.09	≤4.98	Pass
	60	5300	-1.87	≤4.98	Pass
	64	5320	-1.88	≤4.98	Pass
8	38	5190	-2.01	≤10.98	Pass
	46	5230	-2.10	≤10.98	Pass
	54	5270	-2.35	≤4.98	Pass
	62	5310	-1.67	≤4.98	Pass
9	42	5210	-6.32	≤10.98	Pass
	58	5290	-5.76	≤4.98	Pass
10	50	5250	-7.93	≤4.98	Pass

Dipole Antenna- ETH7 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	-2.58	≤10.98	Pass
	44	5220	-2.10	≤10.98	Pass
	48	5240	-2.31	≤10.98	Pass
	52	5260	-4.06	≤4.98	Pass
	60	5300	-4.03	≤4.98	Pass
	64	5320	-3.69	≤4.98	Pass
3	38	5190	-5.58	≤10.98	Pass
	46	5230	-5.43	≤10.98	Pass
	54	5270	-6.38	≤4.98	Pass
	62	5310	-5.82	≤4.98	Pass
4	36	5180	-2.70	≤10.98	Pass
	44	5220	-2.46	≤10.98	Pass
	48	5240	-2.53	≤10.98	Pass
	52	5260	-4.26	≤4.98	Pass
	60	5300	-4.09	≤4.98	Pass
	64	5320	-3.66	≤4.98	Pass
5	38	5190	-5.86	≤10.98	Pass
	46	5230	-5.64	≤10.98	Pass
	54	5270	-6.60	≤4.98	Pass
	62	5310	-6.05	≤4.98	Pass
6	42	5210	-8.04	≤10.98	Pass
	58	5290	-8.03	≤4.98	Pass

Dipole Antenna-ETH7 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	-2.60	≤10.98	Pass
	44	5220	-2.40	≤10.98	Pass
	48	5240	-2.35	≤10.98	Pass
	52	5260	-4.24	≤4.98	Pass
	60	5300	-4.09	≤4.98	Pass
	64	5320	-3.83	≤4.98	Pass
8	38	5190	-5.64	≤10.98	Pass
	46	5230	-5.88	≤10.98	Pass
	54	5270	-6.37	≤4.98	Pass
	62	5310	-6.03	≤4.98	Pass
9	42	5210	-8.29	≤10.98	Pass
	58	5290	-8.55	≤4.98	Pass
10	50	5250	-12.67	≤4.98	Pass

Sector Antenna-ETH6 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	3.76	≤12.79	Pass
	44	5220	4.12	≤12.79	Pass
	48	5240	4.20	≤12.79	Pass
	52	5260	3.12	≤6.79	Pass
	60	5300	3.03	≤6.79	Pass
	64	5320	3.22	≤6.79	Pass
	100	5500	3.31	≤6.79	Pass
	116	5580	3.21	≤6.79	Pass
	140	5700	3.21	≤6.79	Pass
	149	5745	5.39	≤25.79	Pass
	157	5785	5.64	≤25.79	Pass
	165	5825	5.33	≤25.79	Pass
2	36	5180	3.39	≤12.79	Pass
	44	5220	3.61	≤12.79	Pass
	48	5240	3.49	≤12.79	Pass
	52	5260	2.69	≤6.79	Pass
	60	5300	2.97	≤6.79	Pass
	64	5320	2.87	≤6.79	Pass
	100	5500	2.88	≤6.79	Pass
	116	5580	3.08	≤6.79	Pass
	140	5700	2.78	≤6.79	Pass
	149	5745	5.16	≤25.79	Pass
	157	5785	4.85	≤25.79	Pass
	165	5825	5.06	≤25.79	Pass
3	38	5190	0.09	≤12.79	Pass
	46	5230	0.36	≤12.79	Pass
	54	5270	1.04	≤6.79	Pass
	62	5310	1.48	≤6.79	Pass
	102	5510	1.02	≤6.79	Pass
	110	5550	1.41	≤6.79	Pass
	134	5670	0.75	≤6.79	Pass
	151	5755	1.20	≤25.79	Pass
	159	5795	1.73	≤25.79	Pass

Sector Antenna-ETH6 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	3.31	≤12.79	Pass
	44	5220	3.79	≤12.79	Pass
	48	5240	3.72	≤12.79	Pass
	52	5260	2.61	≤6.79	Pass
	60	5300	2.73	≤6.79	Pass
	64	5320	2.89	≤6.79	Pass
	100	5500	2.82	≤6.79	Pass
	116	5580	3.25	≤6.79	Pass
	140	5700	2.82	≤6.79	Pass
	149	5745	5.16	≤25.79	Pass
	157	5785	5.37	≤25.79	Pass
	165	5825	5.02	≤25.79	Pass
5	38	5190	0.53	≤12.79	Pass
	46	5230	0.32	≤12.79	Pass
	54	5270	0.99	≤6.79	Pass
	62	5310	1.68	≤6.79	Pass
	102	5510	1.15	≤6.79	Pass
	110	5550	1.19	≤6.79	Pass
	134	5670	0.94	≤6.79	Pass
	151	5755	1.54	≤25.79	Pass
	159	5795	1.73	≤25.79	Pass
6	42	5210	-2.94	≤12.79	Pass
	58	5290	-3.20	≤6.79	Pass
	106	5530	-3.21	≤6.79	Pass
	155	5775	-0.85	≤25.79	Pass

Sector Antenna-ETH6 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	3.30	≤12.79	Pass
	44	5220	3.73	≤12.79	Pass
	48	5240	3.44	≤12.79	Pass
	52	5260	2.81	≤6.79	Pass
	60	5300	2.96	≤6.79	Pass
	64	5320	2.93	≤6.79	Pass
	100	5500	2.61	≤6.79	Pass
	116	5580	2.90	≤6.79	Pass
	140	5700	2.75	≤6.79	Pass
	149	5745	5.13	≤25.79	Pass
	157	5785	4.88	≤25.79	Pass
	165	5825	4.84	≤25.79	Pass
8	38	5190	0.33	≤12.79	Pass
	46	5230	0.43	≤12.79	Pass
	54	5270	1.13	≤6.79	Pass
	62	5310	1.48	≤6.79	Pass
	102	5510	1.08	≤6.79	Pass
	110	5550	1.62	≤6.79	Pass
	134	5670	0.98	≤6.79	Pass
	151	5755	1.90	≤25.79	Pass
	159	5795	1.51	≤25.79	Pass
9	42	5210	-2.82	≤12.79	Pass
	58	5290	-3.26	≤6.79	Pass
	106	5530	-2.91	≤6.79	Pass
	155	5775	-1.16	≤25.79	Pass
10	50	5250	-8.13	≤6.79	Pass
	114	5570	-5.53	≤6.79	Pass

Sector Antenna- ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	0.35	≤12.79	Pass
	44	5220	0.36	≤12.79	Pass
	48	5240	0.46	≤12.79	Pass
	52	5260	2.16	≤6.79	Pass
	60	5300	2.18	≤6.79	Pass
	64	5320	2.41	≤6.79	Pass
	100	5500	1.16	≤6.79	Pass
	116	5580	1.02	≤6.79	Pass
	140	5700	0.85	≤6.79	Pass
	149	5745	4.99	≤25.79	Pass
	157	5785	4.90	≤25.79	Pass
	165	5825	4.89	≤25.79	Pass
3	38	5190	-3.00	≤12.79	Pass
	46	5230	-3.00	≤12.79	Pass
	54	5270	-1.65	≤6.79	Pass
	62	5310	-1.43	≤6.79	Pass
	102	5510	-1.86	≤6.79	Pass
	110	5550	-1.68	≤6.79	Pass
	134	5670	-1.95	≤6.79	Pass
	151	5755	1.18	≤25.79	Pass
	159	5795	1.88	≤25.79	Pass

Sector Antenna- ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	0.36	≤12.79	Pass
	44	5220	0.41	≤12.79	Pass
	48	5240	0.52	≤12.79	Pass
	52	5260	1.91	≤6.79	Pass
	60	5300	2.16	≤6.79	Pass
	64	5320	2.34	≤6.79	Pass
	100	5500	1.13	≤6.79	Pass
	116	5580	0.99	≤6.79	Pass
	140	5700	0.75	≤6.79	Pass
	149	5745	4.80	≤25.79	Pass
	157	5785	5.08	≤25.79	Pass
	165	5825	5.23	≤25.79	Pass
5	38	5190	-3.07	≤12.79	Pass
	46	5230	-3.03	≤12.79	Pass
	54	5270	-1.83	≤6.79	Pass
	62	5310	-1.46	≤6.79	Pass
	102	5510	-1.94	≤6.79	Pass
	110	5550	-1.79	≤6.79	Pass
	134	5670	-1.84	≤6.79	Pass
	151	5755	1.44	≤25.79	Pass
	159	5795	1.79	≤25.79	Pass
6	42	5210	-5.92	≤12.79	Pass
	58	5290	-4.70	≤6.79	Pass
	106	5530	-4.85	≤6.79	Pass
	155	5775	-1.24	≤25.79	Pass

Sector Antenna-ETH6 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	0.18	≤12.79	Pass
	44	5220	0.64	≤12.79	Pass
	48	5240	0.55	≤12.79	Pass
	52	5260	1.87	≤6.79	Pass
	60	5300	2.05	≤6.79	Pass
	64	5320	2.48	≤6.79	Pass
	100	5500	1.18	≤6.79	Pass
	116	5580	1.16	≤6.79	Pass
	140	5700	0.91	≤6.79	Pass
	149	5745	5.32	≤25.79	Pass
	157	5785	4.98	≤25.79	Pass
	165	5825	4.15	≤25.79	Pass
8	38	5190	-3.16	≤12.79	Pass
	46	5230	-3.02	≤12.79	Pass
	54	5270	-2.04	≤6.79	Pass
	62	5310	-1.39	≤6.79	Pass
	102	5510	-1.70	≤6.79	Pass
	110	5550	-1.65	≤6.79	Pass
	134	5670	-2.03	≤6.79	Pass
	151	5755	1.49	≤25.79	Pass
	159	5795	1.77	≤25.79	Pass
9	42	5210	-5.91	≤12.79	Pass
	58	5290	-5.06	≤6.79	Pass
	106	5530	-5.05	≤6.79	Pass
	155	5775	-1.03	≤25.79	Pass
10	50	5250	-12.55	≤6.79	Pass
	114	5570	-7.84	≤6.79	Pass

Sector Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	0.19	≤9.78	Pass
	44	5220	0.35	≤9.78	Pass
	48	5240	0.32	≤9.78	Pass
	52	5260	-2.93	≤3.78	Pass
	60	5300	-3.00	≤3.78	Pass
	64	5320	-3.03	≤3.78	Pass
	100	5500	-3.52	≤3.78	Pass
	116	5580	-3.03	≤3.78	Pass
	140	5700	-3.26	≤3.78	Pass
	149	5745	2.82	≤22.78	Pass
	157	5785	2.80	≤22.78	Pass
	165	5825	2.84	≤22.78	Pass
2	36	5180	0.18	≤9.78	Pass
	44	5220	0.58	≤9.78	Pass
	48	5240	0.55	≤9.78	Pass
	52	5260	-2.88	≤3.78	Pass
	60	5300	-3.40	≤3.78	Pass
	64	5320	-2.88	≤3.78	Pass
	100	5500	-2.77	≤3.78	Pass
	116	5580	-3.21	≤3.78	Pass
	140	5700	-3.13	≤3.78	Pass
	149	5745	2.69	≤22.78	Pass
	157	5785	2.65	≤22.78	Pass
	165	5825	2.24	≤22.78	Pass
3	38	5190	-2.75	≤9.78	Pass
	46	5230	-2.54	≤9.78	Pass
	54	5270	-2.98	≤3.78	Pass
	62	5310	-3.17	≤3.78	Pass
	102	5510	-3.14	≤3.78	Pass
	110	5550	-3.44	≤3.78	Pass
	134	5670	-2.96	≤3.78	Pass
	151	5755	-0.05	≤22.78	Pass
	159	5795	-1.44	≤22.78	Pass

Sector Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	0.37	≤9.78	Pass
	44	5220	0.57	≤9.78	Pass
	48	5240	0.59	≤9.78	Pass
	52	5260	-2.73	≤3.78	Pass
	60	5300	-3.12	≤3.78	Pass
	64	5320	-2.74	≤3.78	Pass
	100	5500	-2.90	≤3.78	Pass
	116	5580	-3.05	≤3.78	Pass
	140	5700	-3.06	≤3.78	Pass
	149	5745	2.62	≤22.78	Pass
	157	5785	2.62	≤22.78	Pass
	165	5825	2.54	≤22.78	Pass
5	38	5190	-2.83	≤9.78	Pass
	46	5230	-2.78	≤9.78	Pass
	54	5270	-3.00	≤3.78	Pass
	62	5310	-3.15	≤3.78	Pass
	102	5510	-2.91	≤3.78	Pass
	110	5550	-3.39	≤3.78	Pass
	134	5670	-3.28	≤3.78	Pass
	151	5755	0.45	≤22.78	Pass
	159	5795	-1.14	≤22.78	Pass
6	42	5210	-5.98	≤9.78	Pass
	58	5290	-5.59	≤3.78	Pass
	106	5530	-4.89	≤3.78	Pass
	155	5775	-3.79	≤22.78	Pass

Sector Antenna-ETH6 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	0.08	≤9.78	Pass
	44	5220	0.53	≤9.78	Pass
	48	5240	0.31	≤9.78	Pass
	52	5260	-2.85	≤3.78	Pass
	60	5300	-3.45	≤3.78	Pass
	64	5320	-2.91	≤3.78	Pass
	100	5500	-2.75	≤3.78	Pass
	116	5580	-2.94	≤3.78	Pass
	140	5700	-2.98	≤3.78	Pass
	149	5745	2.77	≤22.78	Pass
	157	5785	2.40	≤22.78	Pass
	165	5825	2.53	≤22.78	Pass
8	38	5190	-2.81	≤9.78	Pass
	46	5230	-2.80	≤9.78	Pass
	54	5270	-3.20	≤3.78	Pass
	62	5310	-2.87	≤3.78	Pass
	102	5510	-2.99	≤3.78	Pass
	110	5550	-3.27	≤3.78	Pass
	134	5670	-3.11	≤3.78	Pass
	151	5755	0.46	≤22.78	Pass
	159	5795	-0.96	≤22.78	Pass
9	42	5210	-5.84	≤9.78	Pass
	58	5290	-5.34	≤3.78	Pass
	106	5530	-5.14	≤3.78	Pass
	155	5775	-3.12	≤22.78	Pass
10	50	5250	-10.87	≤3.78	Pass
	114	5570	-8.48	≤3.78	Pass

Sector Antenna- ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	-5.99	≤9.78	Pass
	44	5220	-5.66	≤9.78	Pass
	48	5240	-5.59	≤9.78	Pass
	52	5260	-4.05	≤3.78	Pass
	60	5300	-3.77	≤3.78	Pass
	64	5320	-3.36	≤3.78	Pass
	100	5500	-4.00	≤3.78	Pass
	116	5580	-4.80	≤3.78	Pass
	140	5700	-5.19	≤3.78	Pass
	149	5745	2.35	≤22.78	Pass
	157	5785	2.42	≤22.78	Pass
	165	5825	2.35	≤22.78	Pass
3	38	5190	-8.46	≤9.78	Pass
	46	5230	-8.56	≤9.78	Pass
	54	5270	-7.71	≤3.78	Pass
	62	5310	-7.50	≤3.78	Pass
	102	5510	-7.98	≤3.78	Pass
	110	5550	-7.84	≤3.78	Pass
	134	5670	-8.02	≤3.78	Pass
	151	5755	0.02	≤22.78	Pass
	159	5795	-1.47	≤22.78	Pass

Sector Antenna- ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
4	36	5180	-5.77	≤9.78	Pass
	44	5220	-5.63	≤9.78	Pass
	48	5240	-5.85	≤9.78	Pass
	52	5260	-3.95	≤3.78	Pass
	60	5300	-4.16	≤3.78	Pass
	64	5320	-3.50	≤3.78	Pass
	100	5500	-4.33	≤3.78	Pass
	116	5580	-4.64	≤3.78	Pass
	140	5700	-5.14	≤3.78	Pass
	149	5745	2.68	≤22.78	Pass
	157	5785	2.45	≤22.78	Pass
	165	5825	2.57	≤22.78	Pass
5	38	5190	-8.64	≤9.78	Pass
	46	5230	-8.41	≤9.78	Pass
	54	5270	-7.92	≤3.78	Pass
	62	5310	-7.46	≤3.78	Pass
	102	5510	-7.83	≤3.78	Pass
	110	5550	-818	≤3.78	Pass
	134	5670	-7.87	≤3.78	Pass
	151	5755	0.63	≤22.78	Pass
	159	5795	-1.57	≤22.78	Pass
6	42	5210	-11.48	≤9.78	Pass
	58	5290	-10.70	≤3.78	Pass
	106	5530	-10.75	≤3.78	Pass
	155	5775	-3.36	≤22.78	Pass

Sector Antenna-ETH6 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	-5.83	≤9.78	Pass
	44	5220	-5.61	≤9.78	Pass
	48	5240	-5.90	≤9.78	Pass
	52	5260	-3.97	≤3.78	Pass
	60	5300	-3.79	≤3.78	Pass
	64	5320	-3.49	≤3.78	Pass
	100	5500	-4.30	≤3.78	Pass
	116	5580	-4.55	≤3.78	Pass
	140	5700	-5.18	≤3.78	Pass
	149	5745	2.72	≤22.78	Pass
	157	5785	2.72	≤22.78	Pass
	165	5825	2.65	≤22.78	Pass
8	38	5190	-8.62	≤9.78	Pass
	46	5230	-8.49	≤9.78	Pass
	54	5270	-7.87	≤3.78	Pass
	62	5310	-7.25	≤3.78	Pass
	102	5510	-7.89	≤3.78	Pass
	110	5550	-7.78	≤3.78	Pass
	134	5670	-8.08	≤3.78	Pass
	151	5755	0.52	≤22.78	Pass
	159	5795	-1.28	≤22.78	Pass
9	42	5210	-11.73	≤9.78	Pass
	58	5290	-10.63	≤3.78	Pass
	106	5530	-10.64	≤3.78	Pass
	155	5775	-3.64	≤22.78	Pass
10	50	5250	-18.49	≤3.78	Pass
	114	5570	-12.85	≤3.78	Pass

Sector Antenna-ETH7 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	3.67	≤12.79	Pass
	44	5220	4.28	≤12.79	Pass
	48	5240	3.99	≤12.79	Pass
	52	5260	3.08	≤6.79	Pass
	60	5300	3.31	≤6.79	Pass
	64	5320	3.21	≤6.79	Pass
2	36	5180	3.26	≤12.79	Pass
	44	5220	3.76	≤12.79	Pass
	48	5240	3.46	≤12.79	Pass
	52	5260	2.77	≤6.79	Pass
	60	5300	3.00	≤6.79	Pass
	64	5320	2.93	≤6.79	Pass
3	38	5190	0.43	≤12.79	Pass
	46	5230	0.42	≤12.79	Pass
	54	5270	1.05	≤6.79	Pass
	62	5310	1.55	≤6.79	Pass
4	36	5180	3.34	≤12.79	Pass
	44	5220	3.63	≤12.79	Pass
	48	5240	3.49	≤12.79	Pass
	52	5260	2.99	≤6.79	Pass
	60	5300	2.82	≤6.79	Pass
	64	5320	2.82	≤6.79	Pass
5	38	5190	0.28	≤12.79	Pass
	46	5230	0.33	≤12.79	Pass
	54	5270	0.97	≤6.79	Pass
	62	5310	1.65	≤6.79	Pass
6	42	5210	-3.07	≤12.79	Pass
	58	5290	-3.12	≤6.79	Pass

Sector Antenna-ETH7 CDD 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	3.46	≤12.79	Pass
	44	5220	3.87	≤12.79	Pass
	48	5240	3.56	≤12.79	Pass
	52	5260	2.80	≤6.79	Pass
	60	5300	3.03	≤6.79	Pass
	64	5320	2.83	≤6.79	Pass
8	38	5190	0.42	≤12.79	Pass
	46	5230	0.36	≤12.79	Pass
	54	5270	1.08	≤6.79	Pass
	62	5310	1.55	≤6.79	Pass
9	42	5210	-2.90	≤12.79	Pass
	58	5290	-3.20	≤6.79	Pass
10	50	5250	-4.71	≤6.79	Pass

Sector Antenna- ETH7 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	0.30	≤12.79	Pass
	44	5220	0.52	≤12.79	Pass
	48	5240	0.59	≤12.79	Pass
	52	5260	1.85	≤6.79	Pass
	60	5300	2.21	≤6.79	Pass
	64	5320	2.26	≤6.79	Pass
3	38	5190	-2.89	≤12.79	Pass
	46	5230	-3.21	≤12.79	Pass
	54	5270	-1.87	≤6.79	Pass
	62	5310	-1.37	≤6.79	Pass
4	36	5180	0.21	≤12.79	Pass
	44	5220	0.71	≤12.79	Pass
	48	5240	0.68	≤12.79	Pass
	52	5260	1.90	≤6.79	Pass
	60	5300	1.98	≤6.79	Pass
	64	5320	2.57	≤6.79	Pass
5	38	5190	-3.15	≤12.79	Pass
	46	5230	-3.20	≤12.79	Pass
	54	5270	-1.91	≤6.79	Pass
	62	5310	-1.31	≤6.79	Pass
6	42	5210	-5.75	≤12.79	Pass
	58	5290	-5.09	≤6.79	Pass

Sector Antenna-ETH7 Beamforming 2TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	0.41	≤12.79	Pass
	44	5220	0.54	≤12.79	Pass
	48	5240	0.25	≤12.79	Pass
	52	5260	1.86	≤6.79	Pass
	60	5300	1.91	≤6.79	Pass
	64	5320	2.32	≤6.79	Pass
8	38	5190	-3.06	≤12.79	Pass
	46	5230	-2.99	≤12.79	Pass
	54	5270	-1.99	≤6.79	Pass
	62	5310	-1.40	≤6.79	Pass
9	42	5210	-5.98	≤12.79	Pass
	58	5290	-4.84	≤6.79	Pass
10	50	5250	-9.26	≤6.79	Pass

Sector Antenna-ETH7 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
1	36	5180	0.20	≤9.78	Pass
	44	5220	0.42	≤9.78	Pass
	48	5240	0.24	≤9.78	Pass
	52	5260	-2.86	≤3.78	Pass
	60	5300	-2.87	≤3.78	Pass
	64	5320	-3.10	≤3.78	Pass
2	36	5180	0.34	≤9.78	Pass
	44	5220	0.70	≤9.78	Pass
	48	5240	0.53	≤9.78	Pass
	52	5260	-3.22	≤3.78	Pass
	60	5300	-3.24	≤3.78	Pass
	64	5320	-2.88	≤3.78	Pass
3	38	5190	-2.59	≤9.78	Pass
	46	5230	-2.65	≤9.78	Pass
	54	5270	-3.20	≤3.78	Pass
	62	5310	-2.88	≤3.78	Pass
4	36	5180	0.18	≤9.78	Pass
	44	5220	0.28	≤9.78	Pass
	48	5240	0.55	≤9.78	Pass
	52	5260	-2.91	≤3.78	Pass
	60	5300	-3.38	≤3.78	Pass
	64	5320	-2.83	≤3.78	Pass
5	38	5190	-2.77	≤9.78	Pass
	46	5230	-2.57	≤9.78	Pass
	54	5270	-3.07	≤3.78	Pass
	62	5310	-3.06	≤3.78	Pass
6	42	5210	-5.94	≤9.78	Pass
	58	5290	-5.33	≤3.78	Pass

Sector Antenna-ETH7 CDD 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	0.24	≤9.78	Pass
	44	5220	0.53	≤9.78	Pass
	48	5240	0.60	≤9.78	Pass
	52	5260	-2.89	≤3.78	Pass
	60	5300	-3.27	≤3.78	Pass
	64	5320	-2.97	≤3.78	Pass
8	38	5190	-2.75	≤9.78	Pass
	46	5230	-2.47	≤9.78	Pass
	54	5270	-3.07	≤3.78	Pass
	62	5310	-3.06	≤3.78	Pass
9	42	5210	-6.00	≤9.78	Pass
	58	5290	-5.48	≤3.78	Pass
10	50	5250	-7.86	≤3.78	Pass

Sector Antenna- ETH7 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
2	36	5180	-5.81	≤9.78	Pass
	44	5220	-5.52	≤9.78	Pass
	48	5240	-5.92	≤9.78	Pass
	52	5260	-4.03	≤3.78	Pass
	60	5300	-3.69	≤3.78	Pass
	64	5320	-3.64	≤3.78	Pass
3	38	5190	-8.84	≤9.78	Pass
	46	5230	-8.76	≤9.78	Pass
	54	5270	-7.74	≤3.78	Pass
	62	5310	-7.32	≤3.78	Pass
4	36	5180	-5.81	≤9.78	Pass
	44	5220	-5.48	≤9.78	Pass
	48	5240	-5.82	≤9.78	Pass
	52	5260	-3.94	≤3.78	Pass
	60	5300	-3.85	≤3.78	Pass
	64	5320	-3.29	≤3.78	Pass
5	38	5190	-8.40	≤9.78	Pass
	46	5230	-8.71	≤9.78	Pass
	54	5270	-7.70	≤3.78	Pass
	62	5310	-7.57	≤3.78	Pass
6	42	5210	-11.91	≤9.78	Pass
	58	5290	-10.62	≤3.78	Pass

Sector Antenna-ETH7 Beamforming 4TX					
Mode	Channel	Test Frequency (MHz)	Total Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
7	36	5180	-5.88	≤9.78	Pass
	44	5220	-5.73	≤9.78	Pass
	48	5240	-5.68	≤9.78	Pass
	52	5260	-3.94	≤3.78	Pass
	60	5300	-4.08	≤3.78	Pass
	64	5320	-3.50	≤3.78	Pass
8	38	5190	-8.54	≤9.78	Pass
	46	5230	-8.38	≤9.78	Pass
	54	5270	-8.01	≤3.78	Pass
	62	5310	-7.69	≤3.78	Pass
9	42	5210	-11.61	≤9.78	Pass
	58	5290	-10.73	≤3.78	Pass
10	50	5250	-15.94	≤3.78	Pass

4.8 Radiated Emission Band Edge — VERDICT: PASS

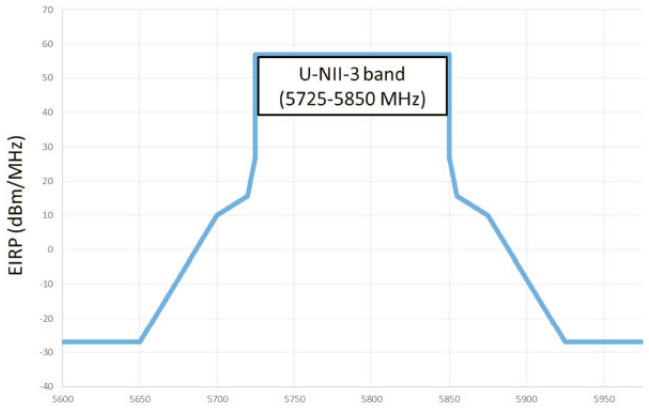
4.8.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247 , 15.209		
Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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
8.81425 – 8.81475	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	
13.36 – 13.41			

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

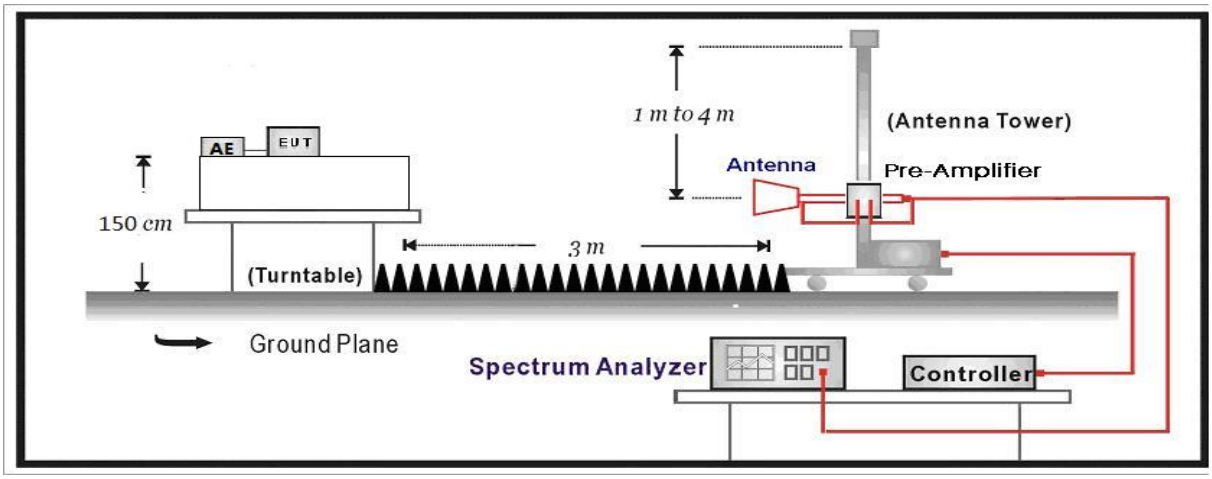
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

FCC Part 15 Subpart C Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	
5725 - 5850		

4.8.2 Test Setup

Above 1GHz Test Setup:

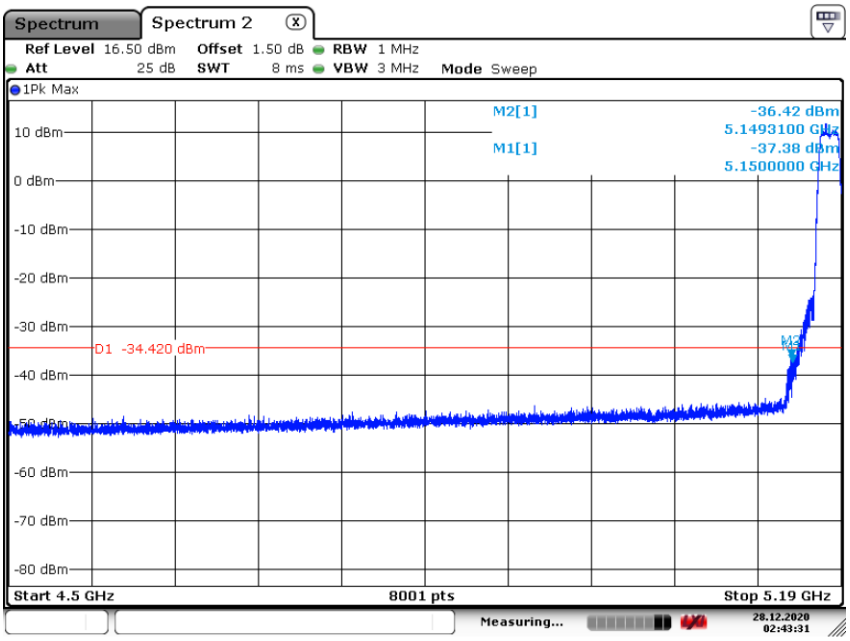
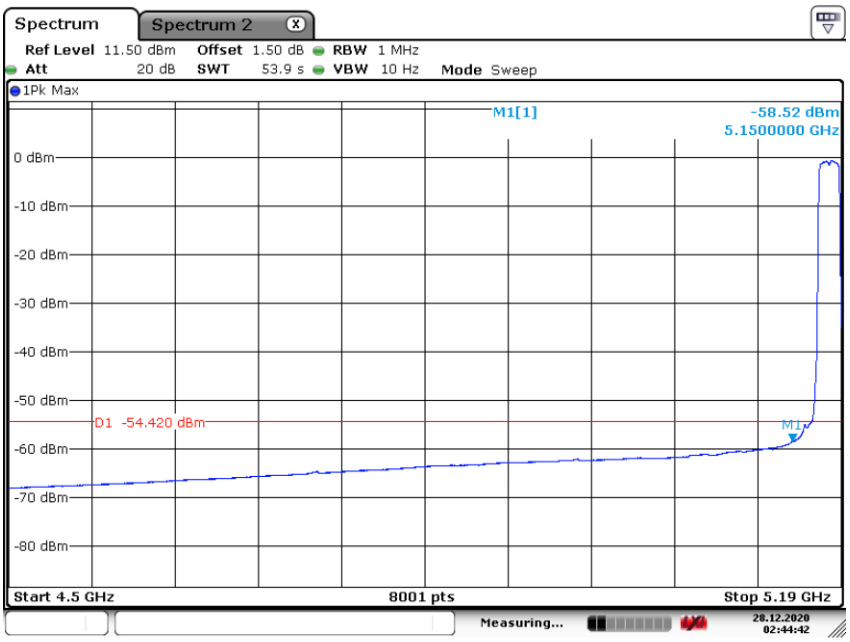


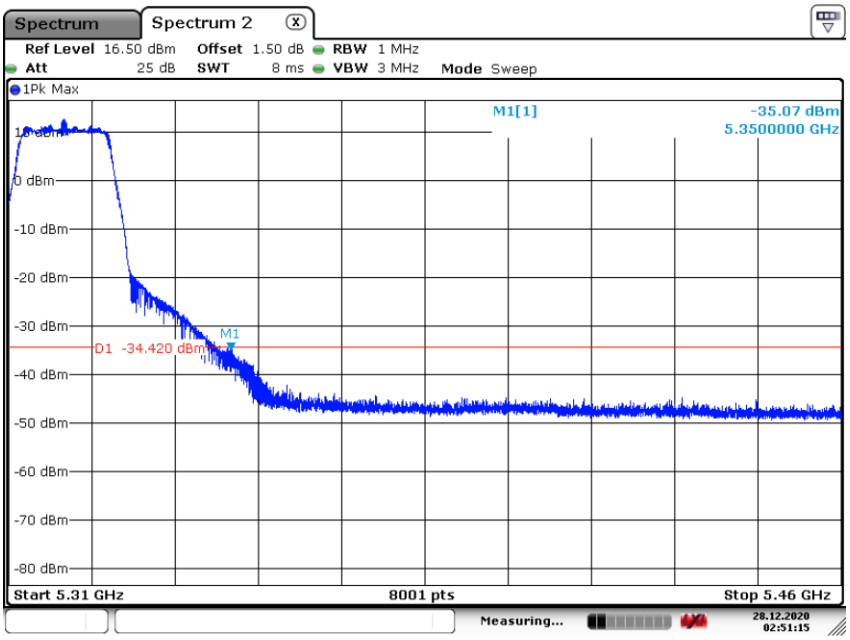
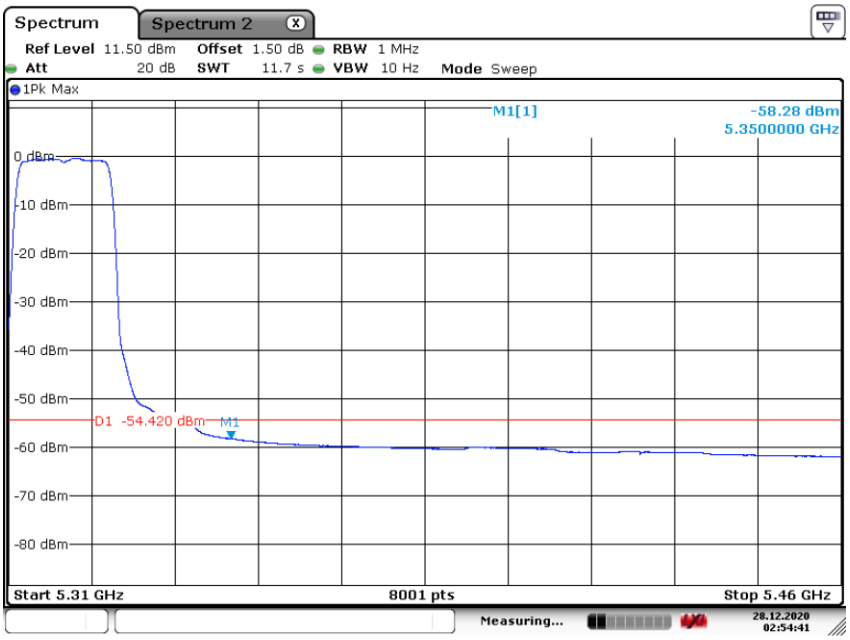
4.8.3 Test Procedure

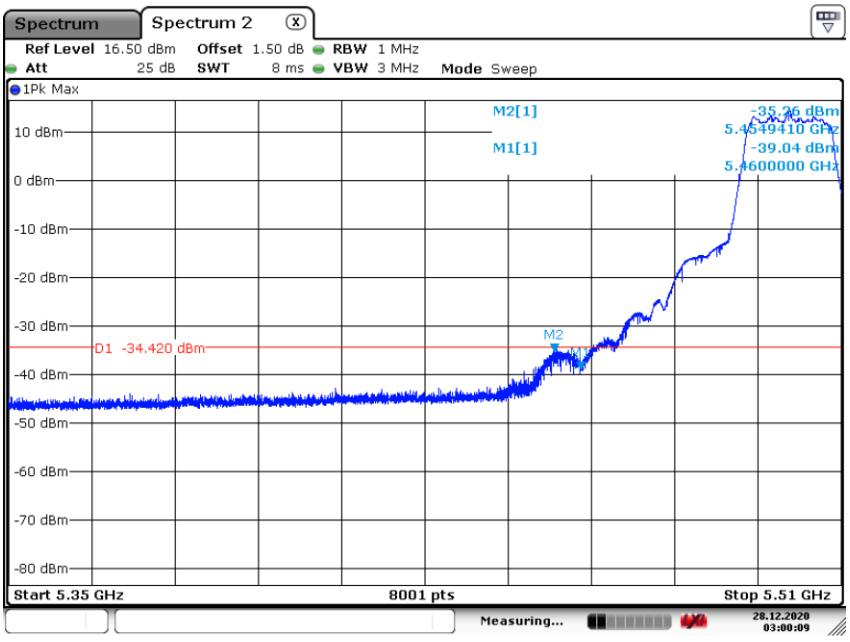
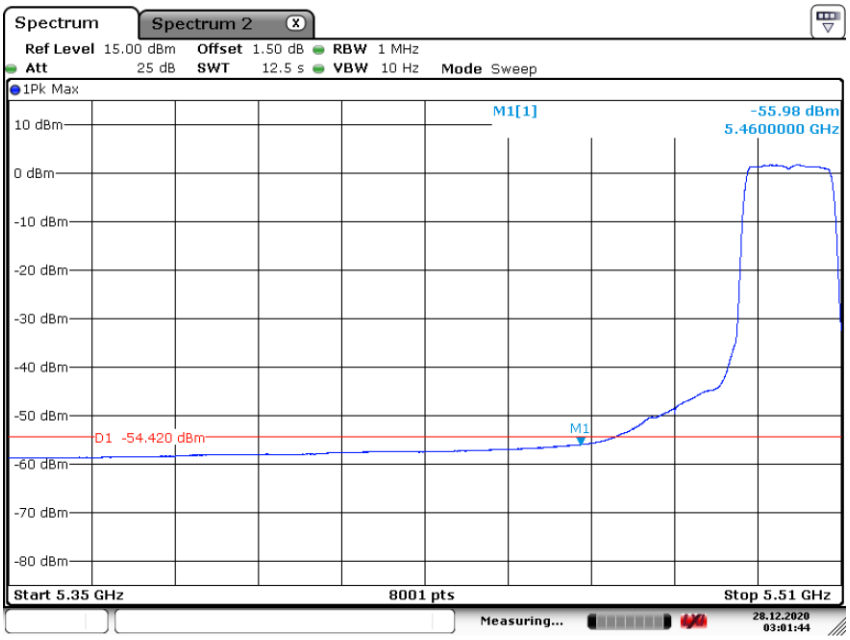
	References Rule	Chapter	Description
☐	ANSI C63.10	12.7.3	Emissions in non-restricted frequency bands
☒	ANSI C63.10	12.7.2	Emissions in restricted frequency bands
	☐ ANSI C63.10	12.7.5	Radiated emission measurements
	☒ ANSI C63.10	12.7.6	Procedure for peak unwanted emissions measurements above 1000 MHz
	☒ ANSI C63.10	12.7.7	Procedures for average unwanted emissions measurements above 1000 MHz
	☐ ANSI C63.10	12.7.7.2	Method AD (average detection)—primary method
	☒ ANSI C63.10	12.7.7.3	Method VB-A (Alternative)
	☐ ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☐ ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☐ ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
☐	FCC KDB 789033 D02v02r01	G.2	Unwanted Emissions that fall Outside of the Restricted Bands
☐	FCC KDB 789033 D02v02r01	G.1	Unwanted Emissions in the Restricted Bands
	☐ FCC KDB 789033 D02v02r01	G.4	Procedure for Unwanted Emissions Measurements below 1000 MHz
	☐ FCC KDB 789033 D02v02r01	G.5	Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz
	☐ FCC KDB 789033 D02v02r01	G.6	Procedures for Average Unwanted Emissions Measurements above 1000 MHz
	☐ FCC KDB 789033 D02v02r01	G.6.c	Method AD (Average detection)—primary method
	☐ FCC KDB 789033 D02v02r01	G.6.d	Method VB (Averaging using reduced video bandwidth): Alternative method.

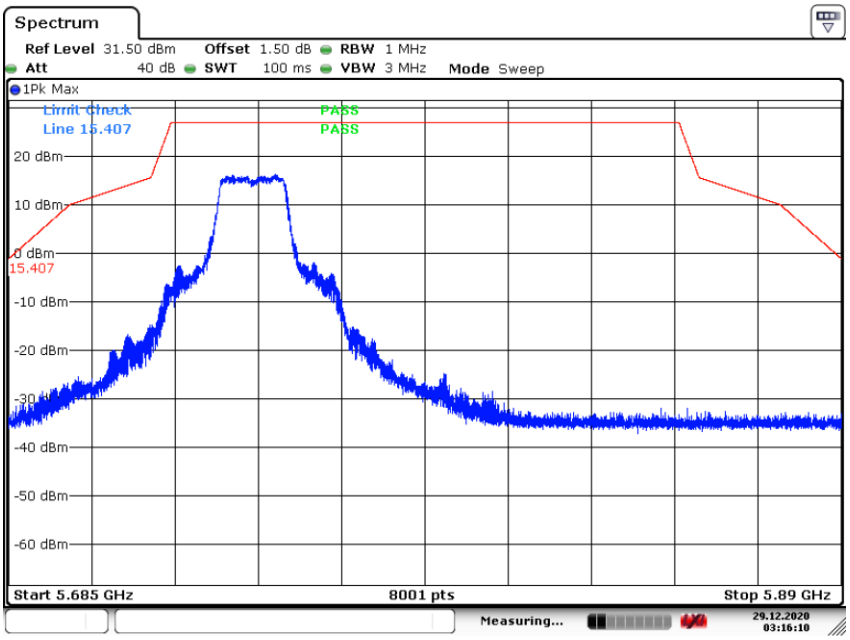
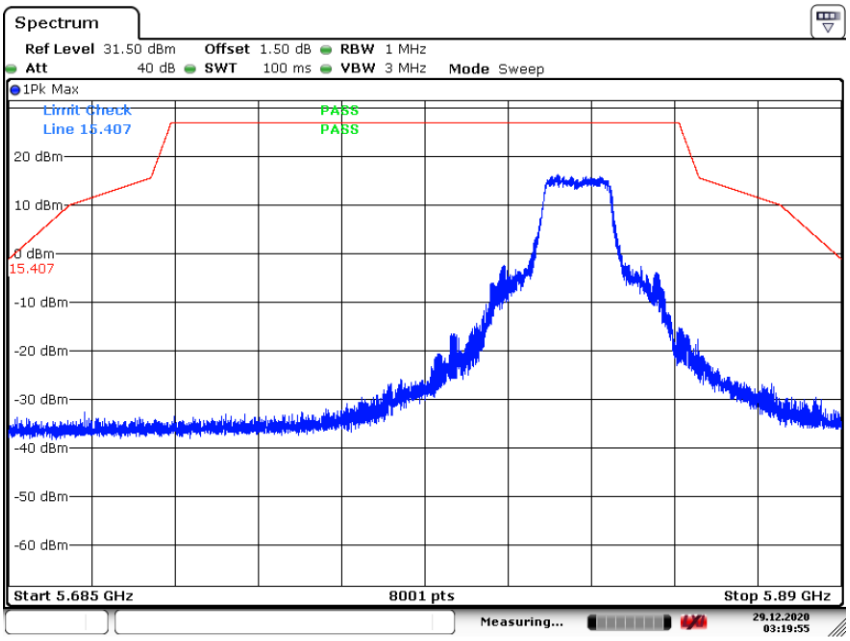
4.8.4 Test Data

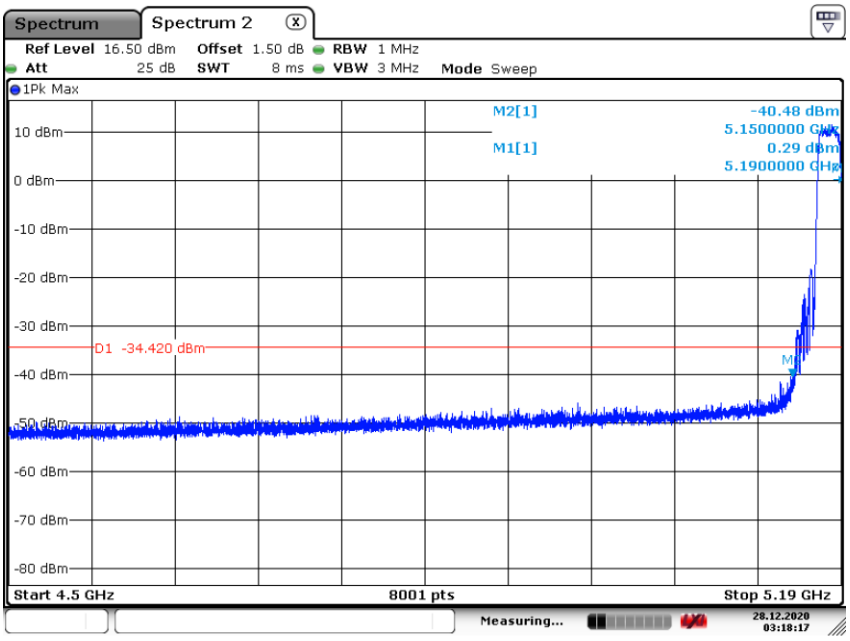
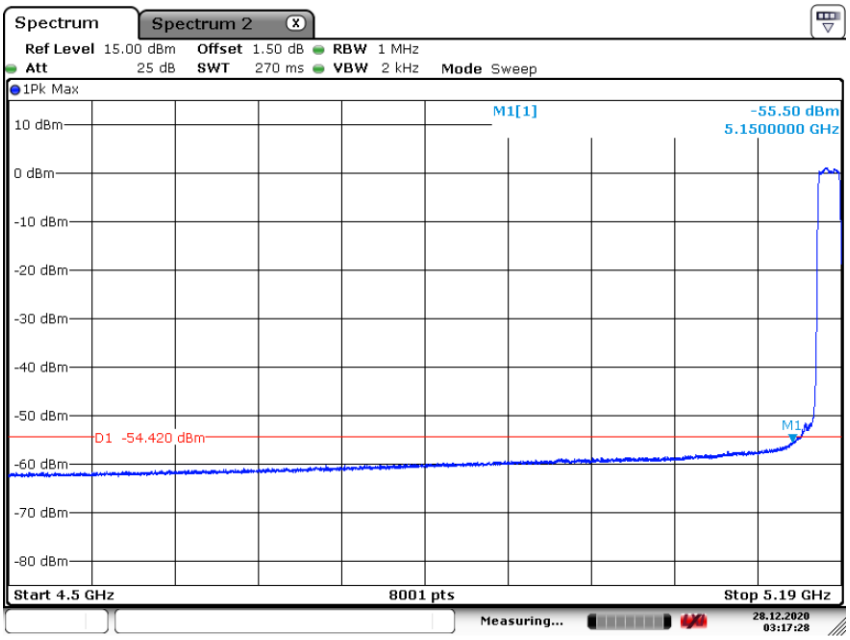
ETH6 CDD 2TX

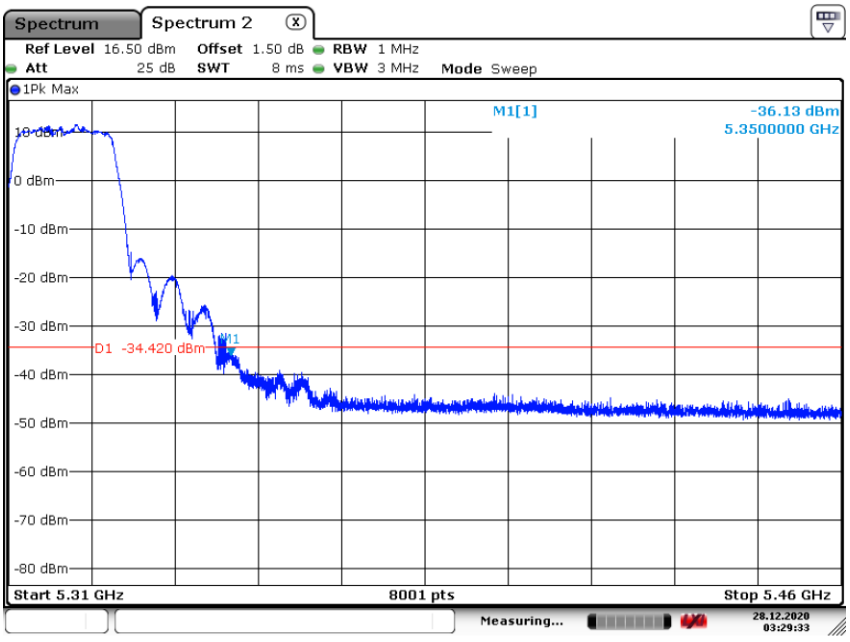
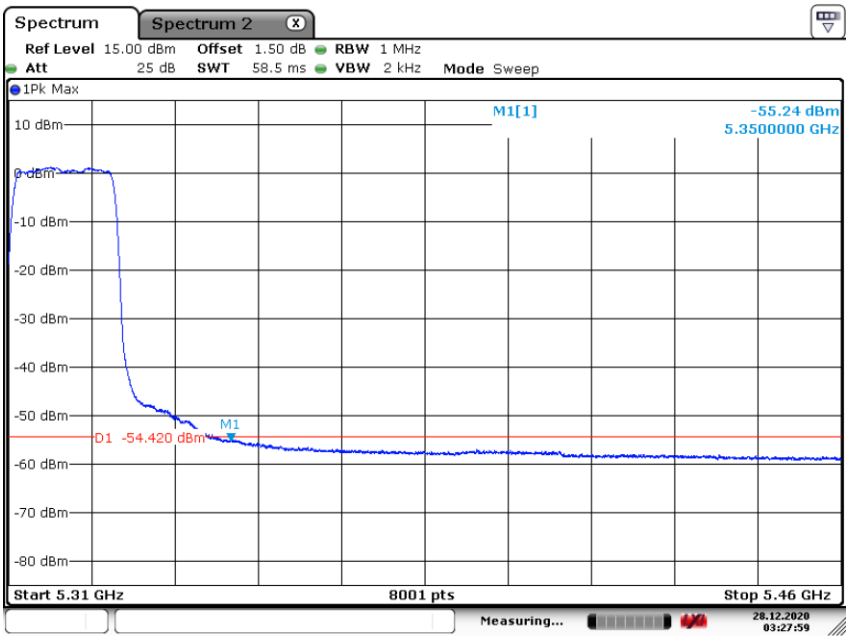
Mode	Channel	Test Frequency (MHz)	Test Plot
1	36	5180	PK  Date: 28.DEC.2020 02:43:31 AV  Date: 28.DEC.2020 02:44:42

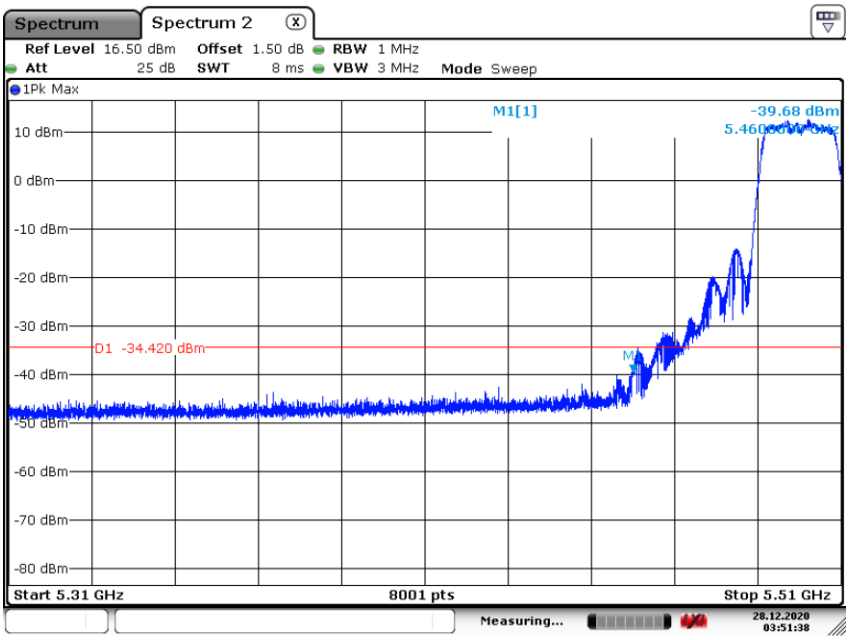
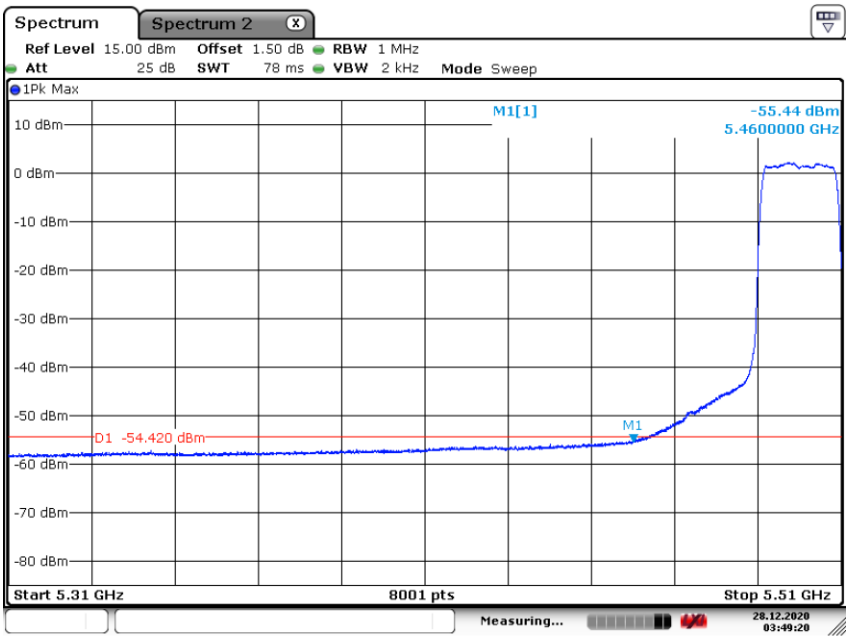
	64	5320	PK  Date: 28.DEC.2020 02:51:16 AV  Date: 28.DEC.2020 02:54:42

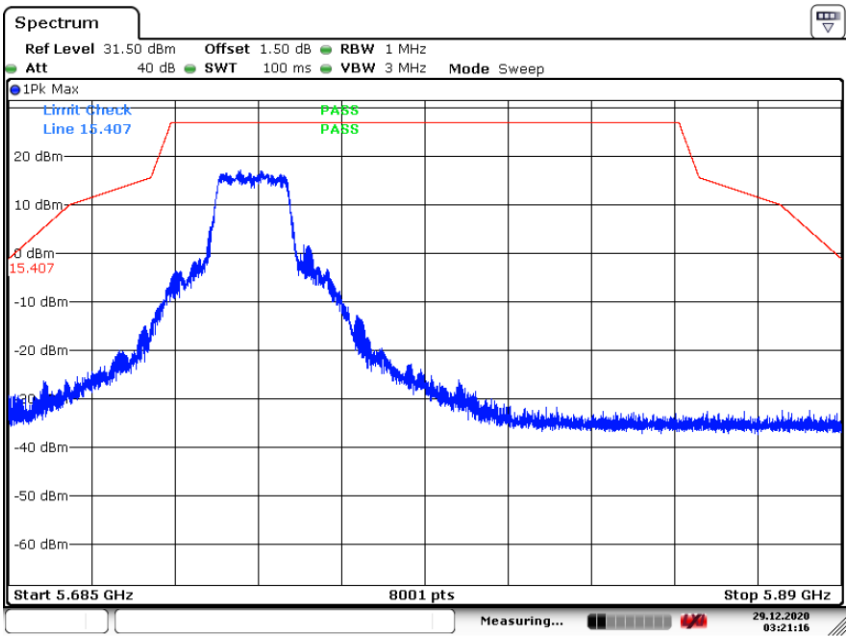
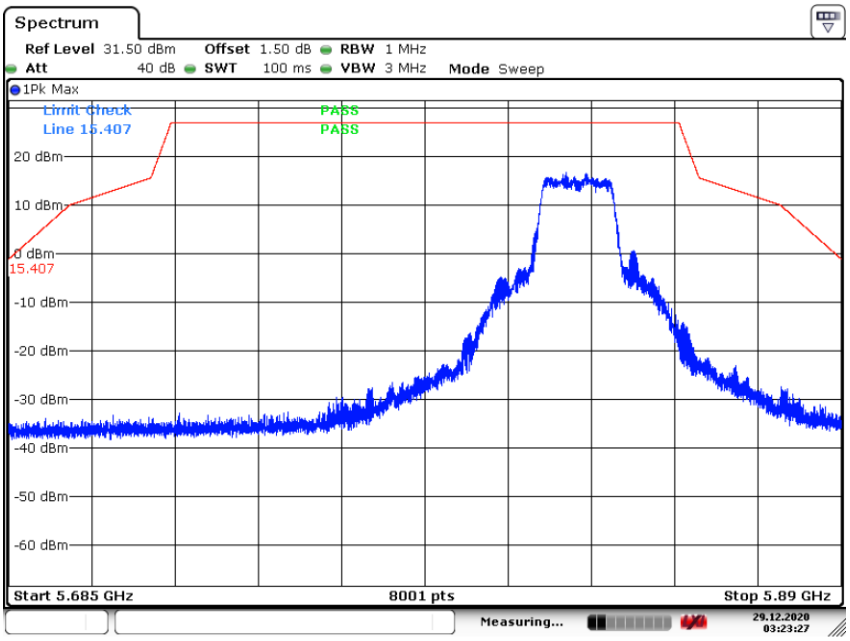
	100	5500	PK  Date: 28.DEC.2020 03:00:09 AV  Date: 28.DEC.2020 03:01:45

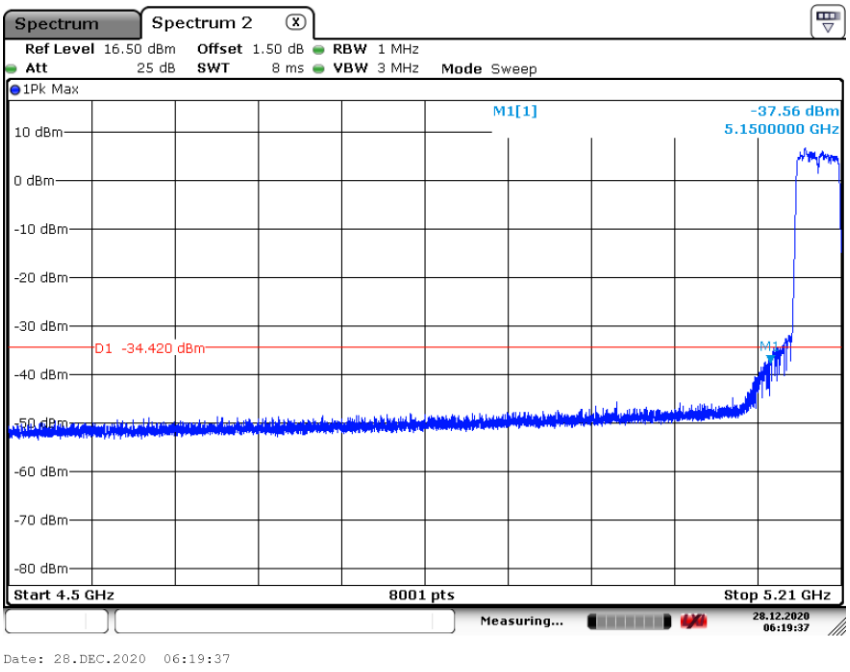
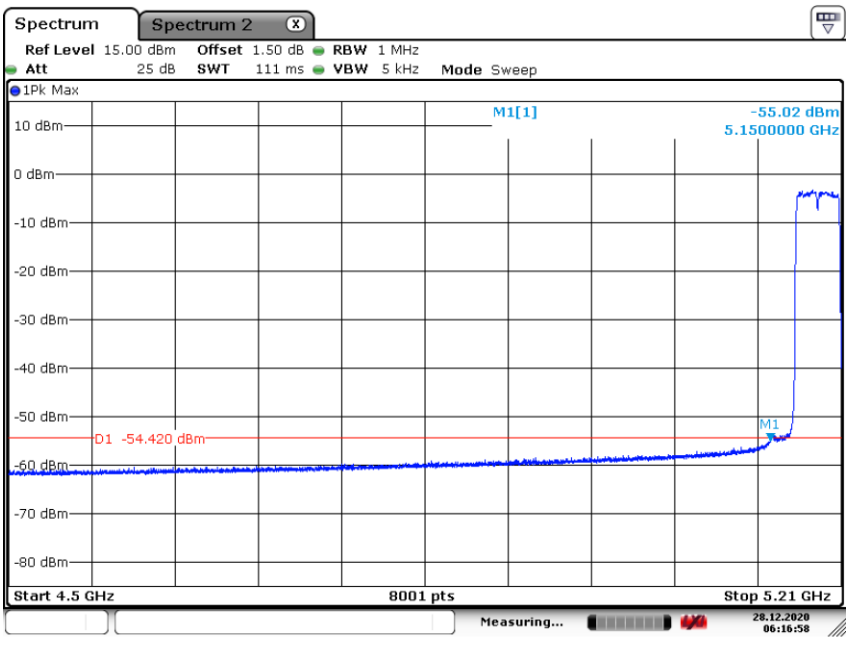
	149	5745	 Date: 29.DEC.2020 03:16:10
	165	5825	 Date: 29.DEC.2020 03:19:55

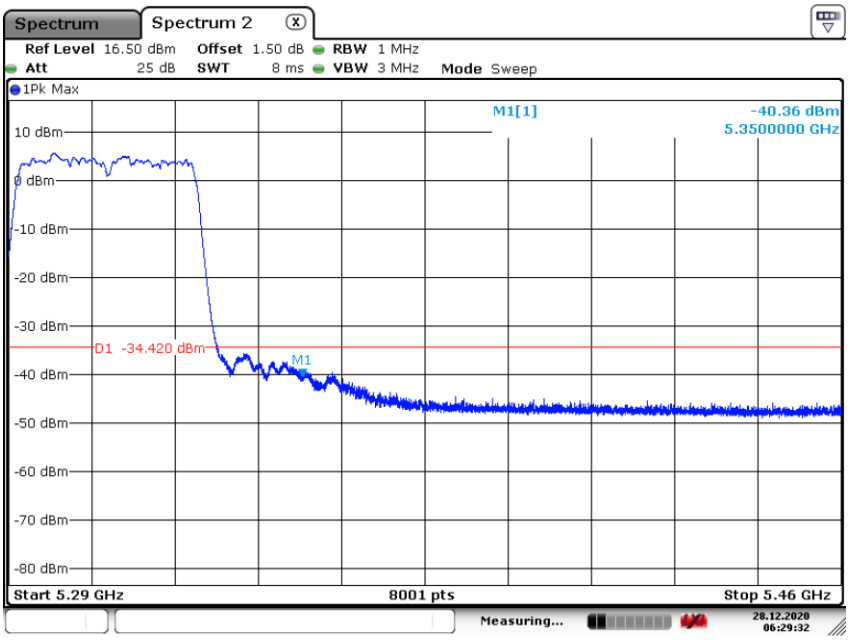
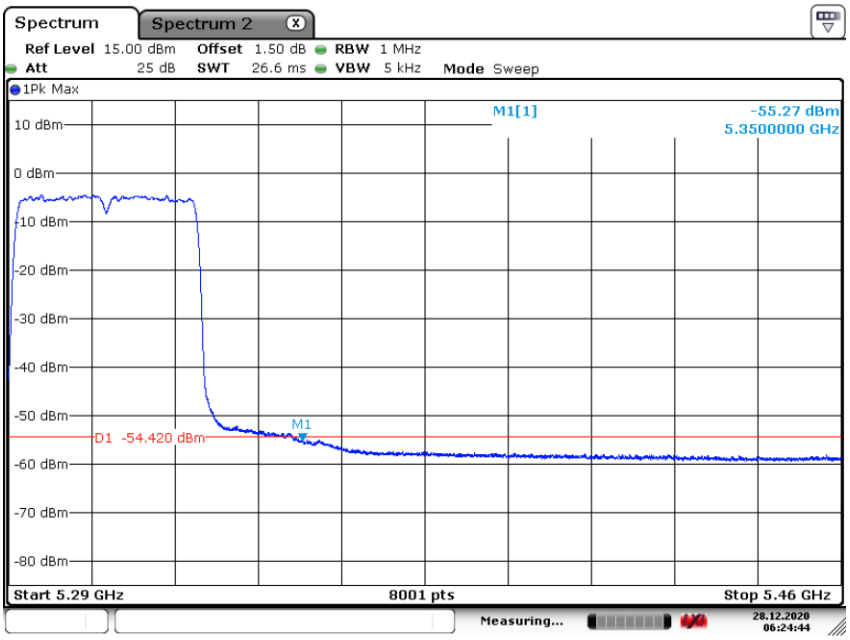
ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
2	36	5180	PK  Date: 28.DEC.2020 03:18:17 AV  Date: 28.DEC.2020 03:17:28

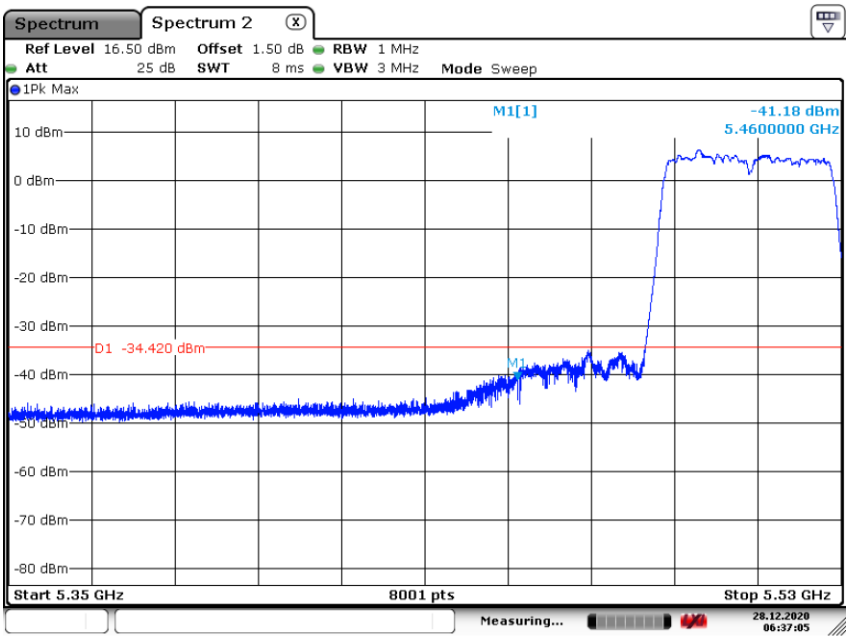
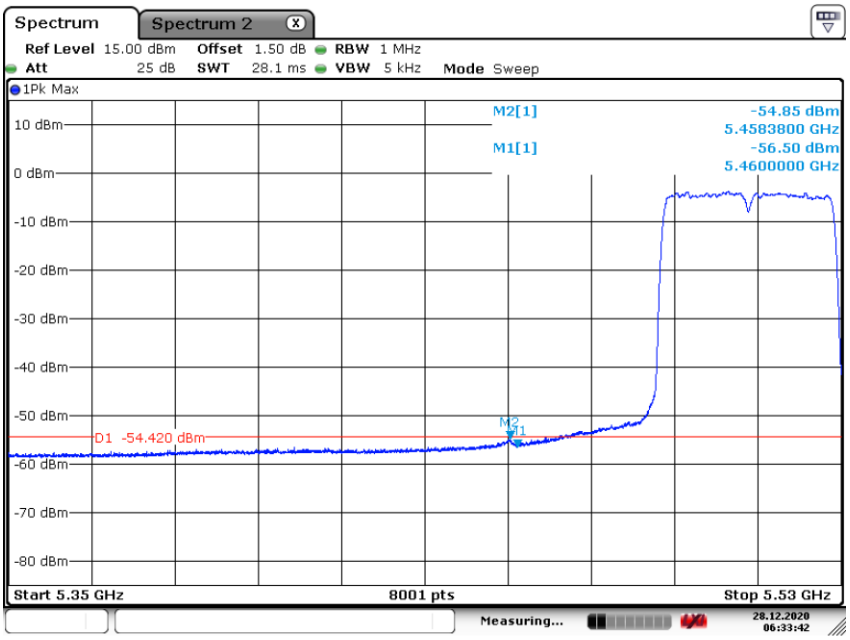
	64	5320	PK  Date: 28.DEC.2020 03:29:32 AV  Date: 28.DEC.2020 03:27:59

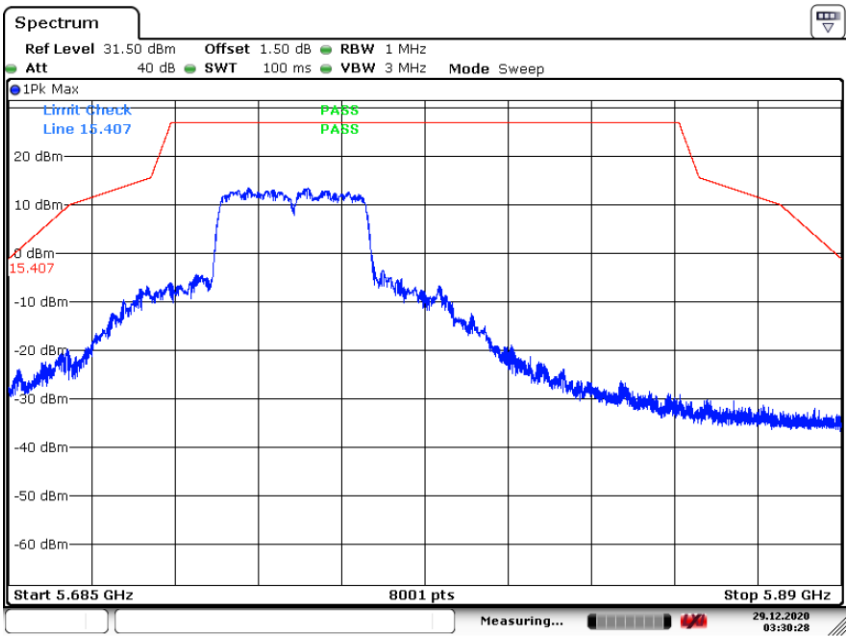
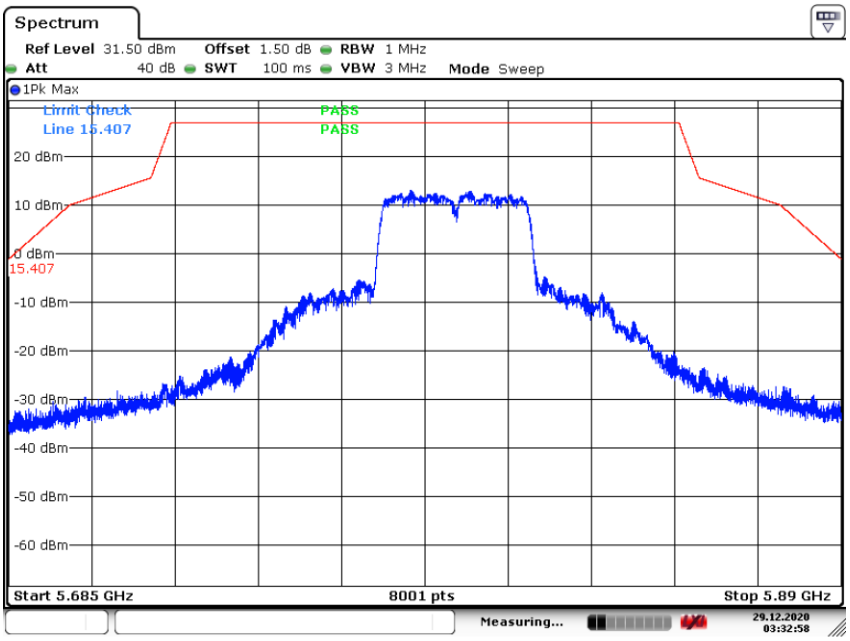
	100	5500	PK  Date: 28.DEC.2020 03:51:38 AV  Date: 28.DEC.2020 03:49:20

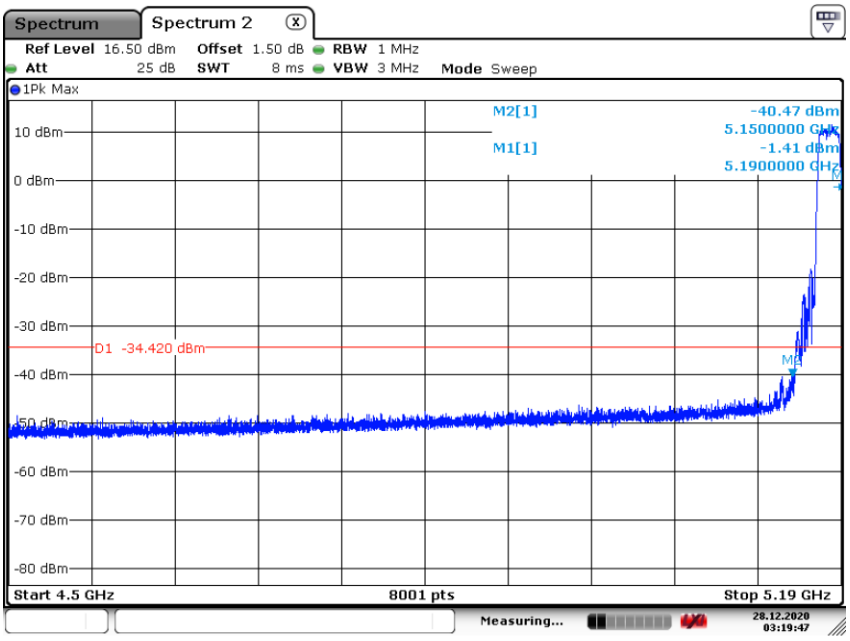
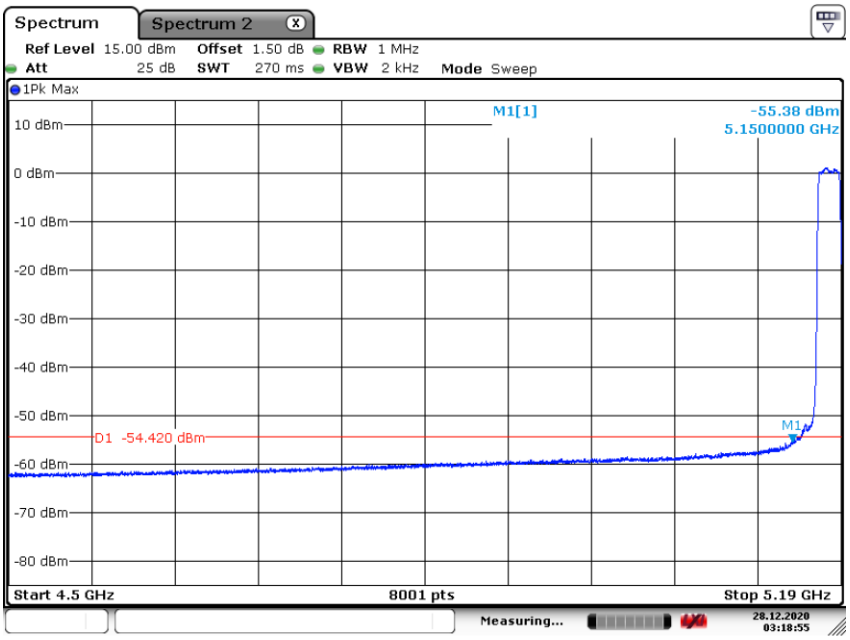
	149	5745	 Date: 29.DEC.2020 03:21:16
	165	5825	 Date: 29.DEC.2020 03:23:27

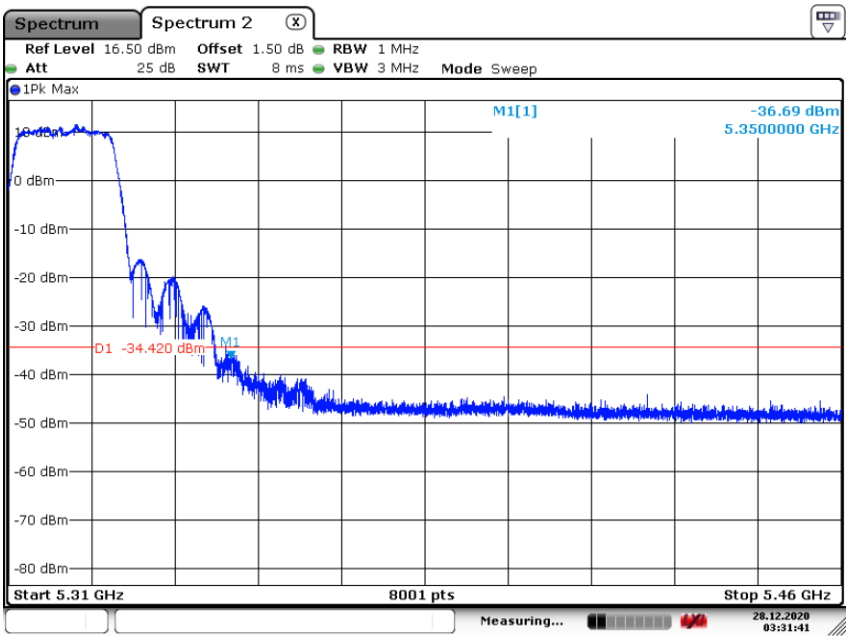
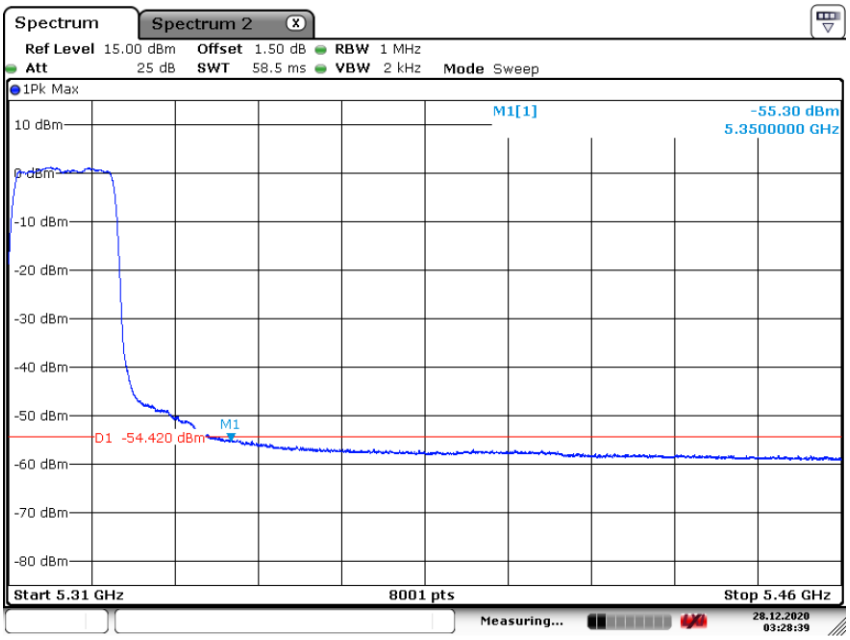
ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
3	38	5190	PK  Date: 28.DEC.2020 06:19:37 AV  Date: 28.DEC.2020 06:16:58

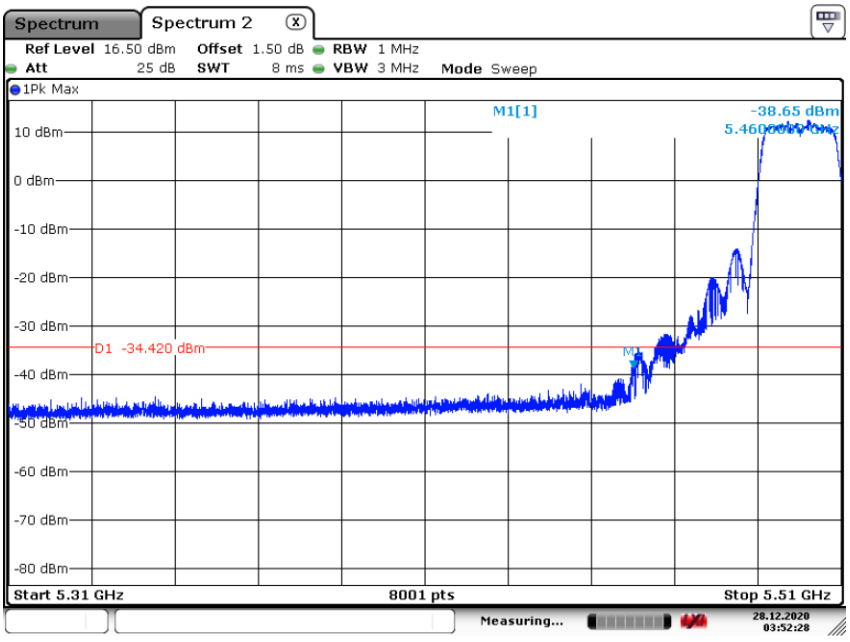
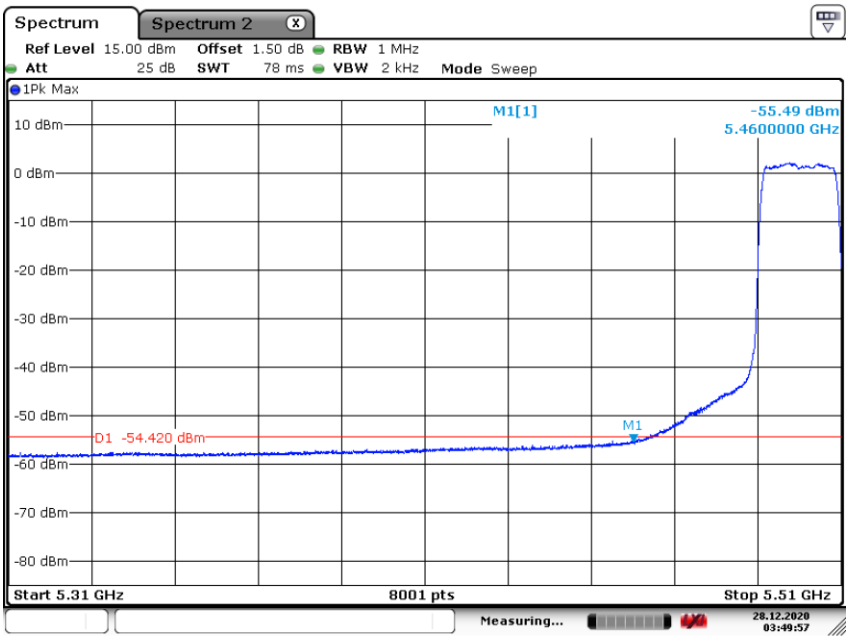
	62	5310	PK  Date: 28.DEC.2020 06:29:33 AV  Date: 28.DEC.2020 06:24:44

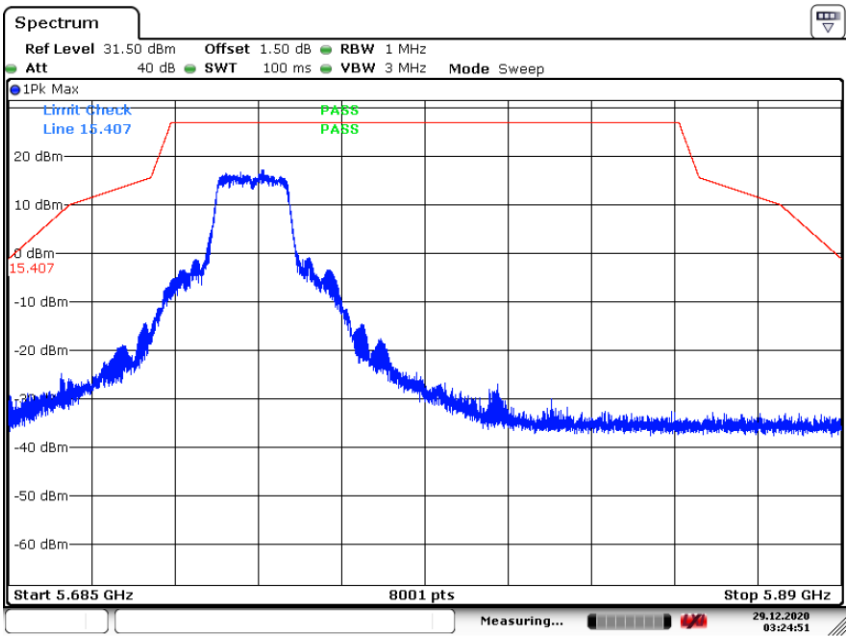
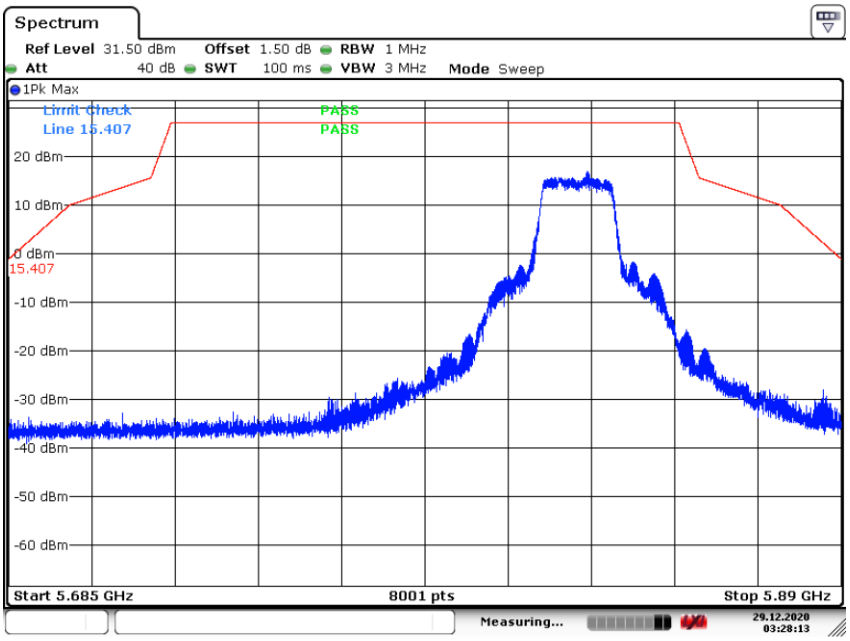
	102	5510	PK  Date: 28.DEC.2020 06:37:05 AV  Date: 28.DEC.2020 06:33:42

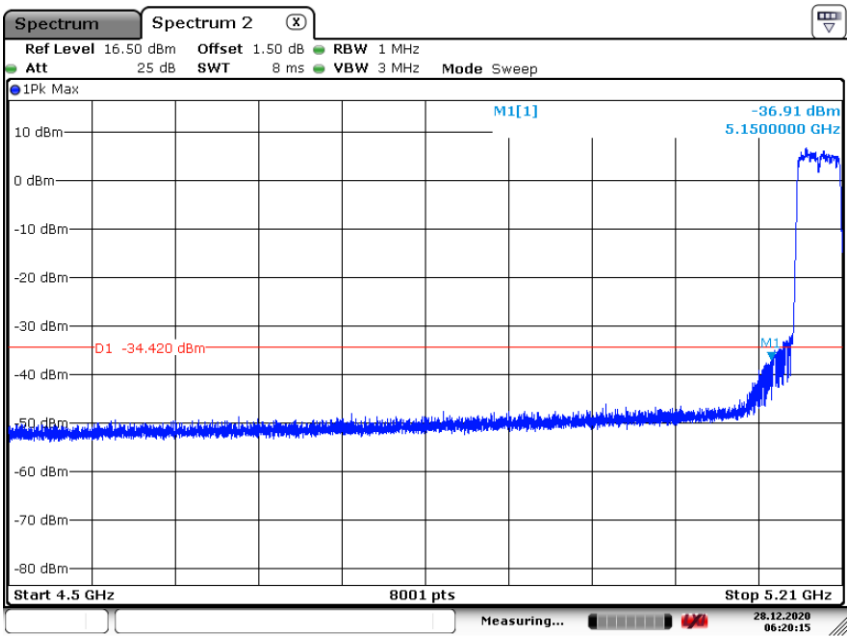
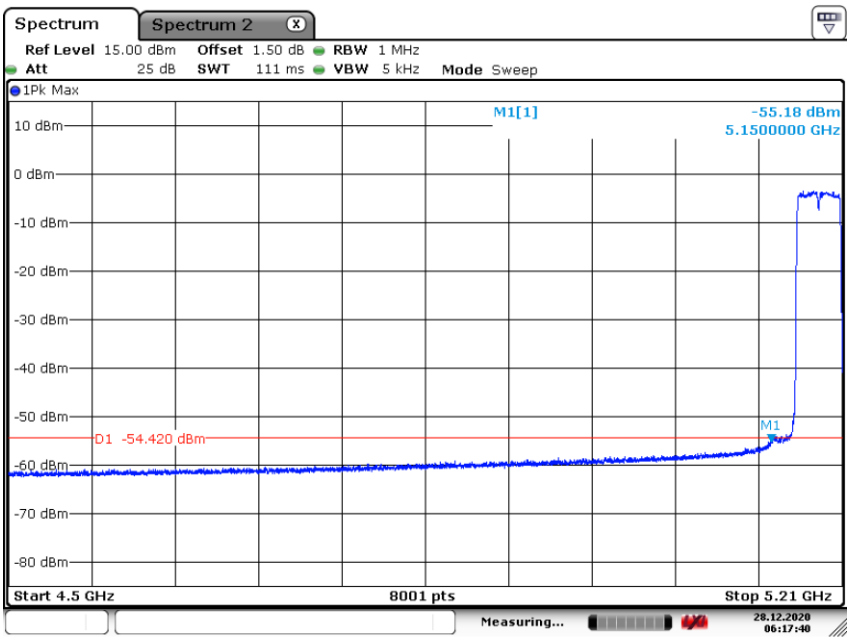
	151	5755	 Date: 29.DEC.2020 03:30:28
	159	5795	 Date: 29.DEC.2020 03:32:59

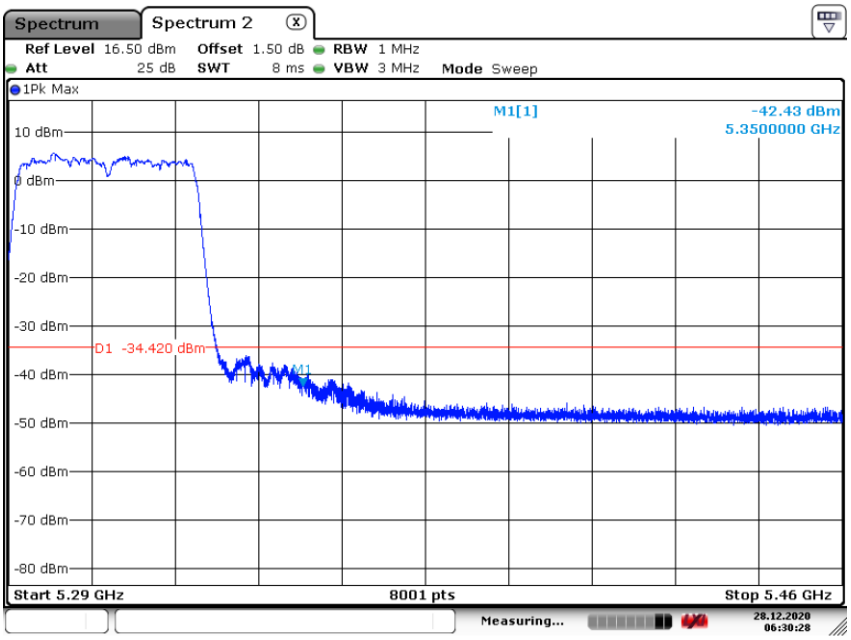
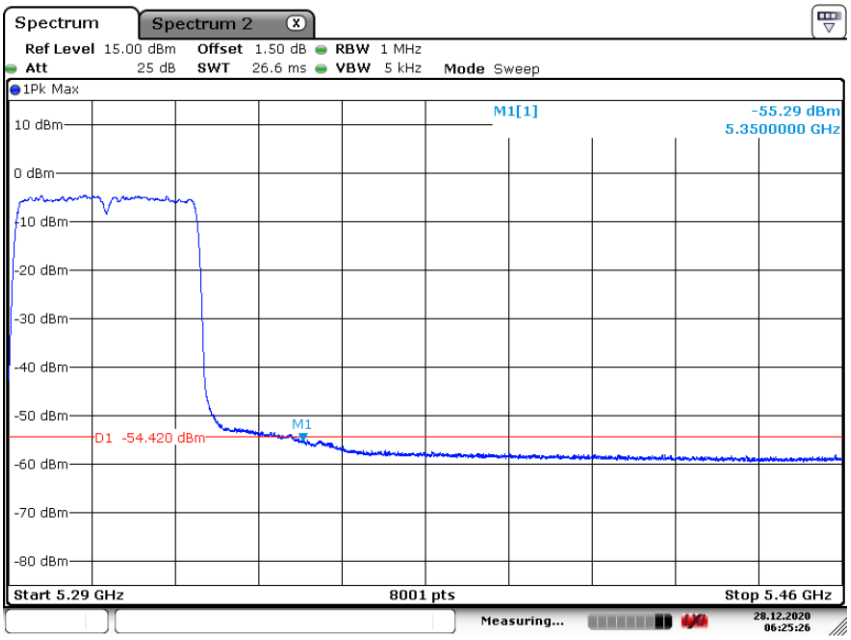
ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
4	36	5180	PK  Date: 28.DEC.2020 03:19:47 AV  Date: 28.DEC.2020 03:18:55

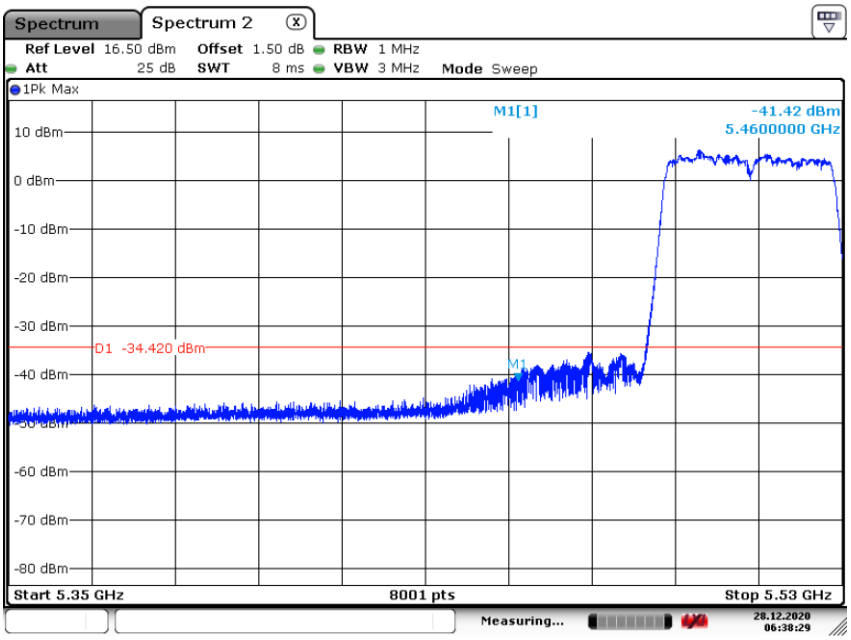
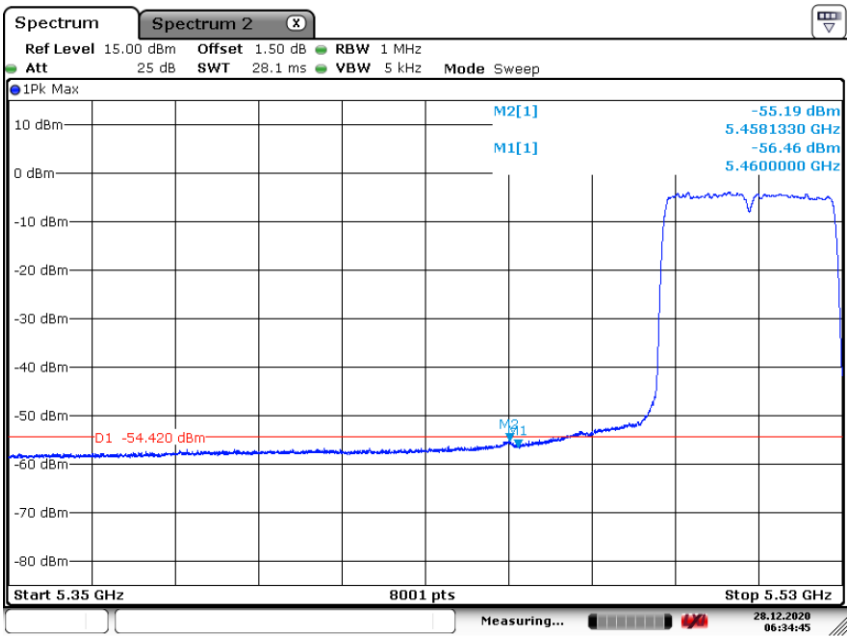
	64	5320	PK  Date: 28.DEC.2020 03:31:41 AV  Date: 28.DEC.2020 03:28:39

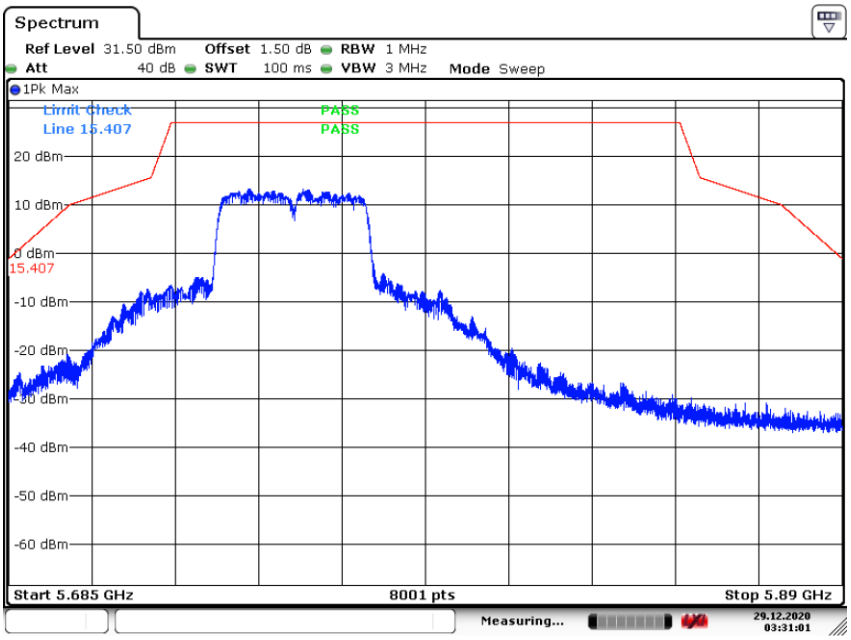
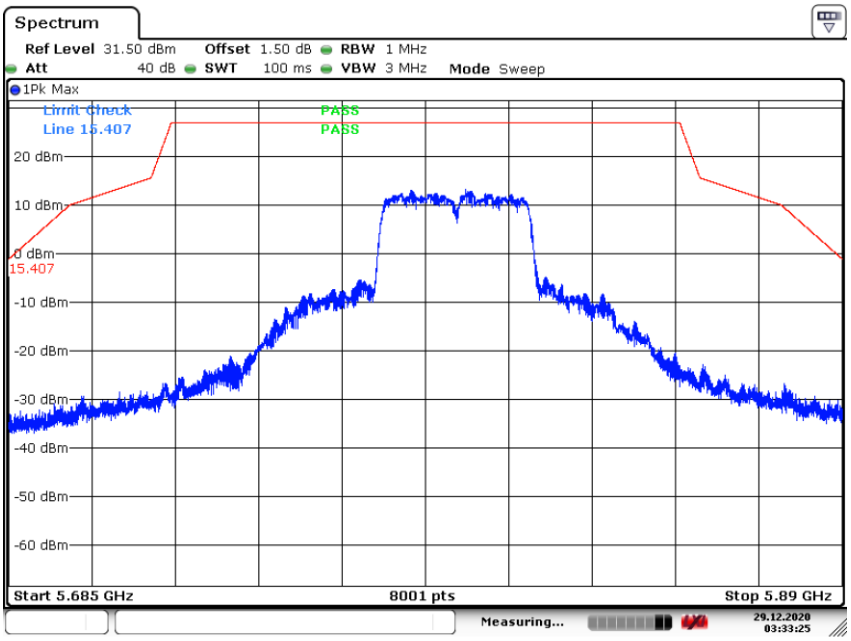
	100	5500	PK  Date: 28.DEC.2020 03:52:29 AV  Date: 28.DEC.2020 03:49:57

	149	5745	 Date: 29.DEC.2020 03:24:51
	165	5825	 Date: 29.DEC.2020 03:28:13

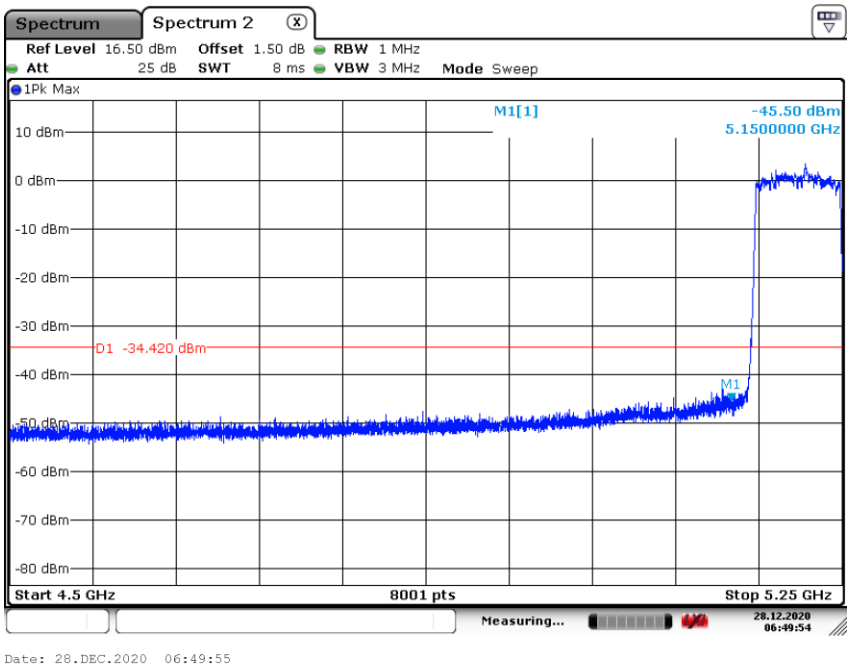
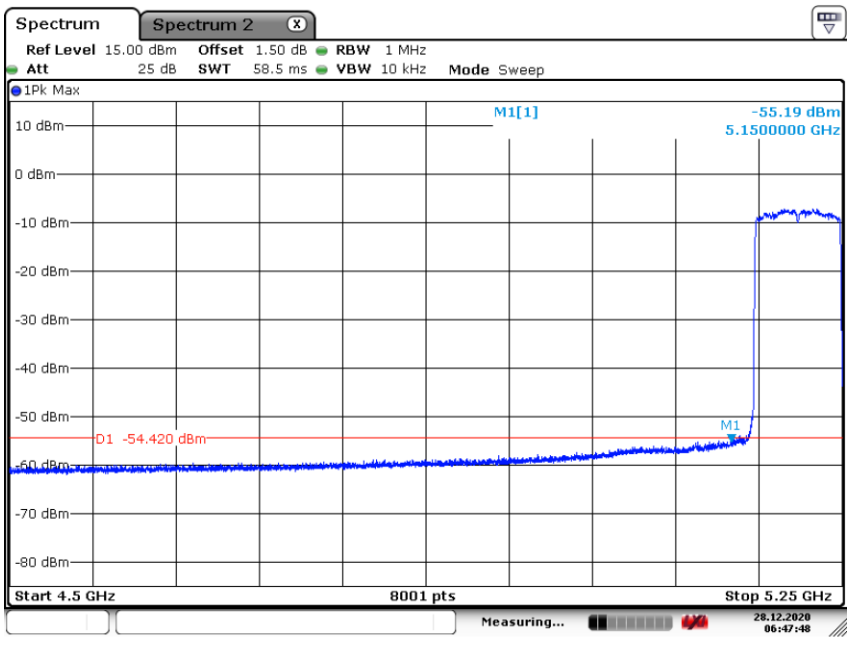
ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
5	38	5190	PK  Date: 28.DEC.2020 06:20:15 AV  Date: 28.DEC.2020 06:17:40

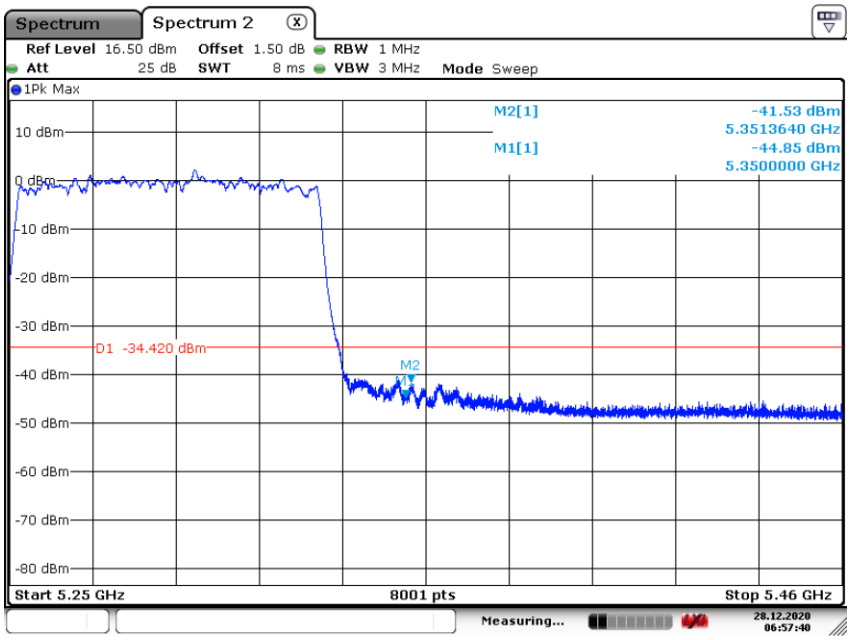
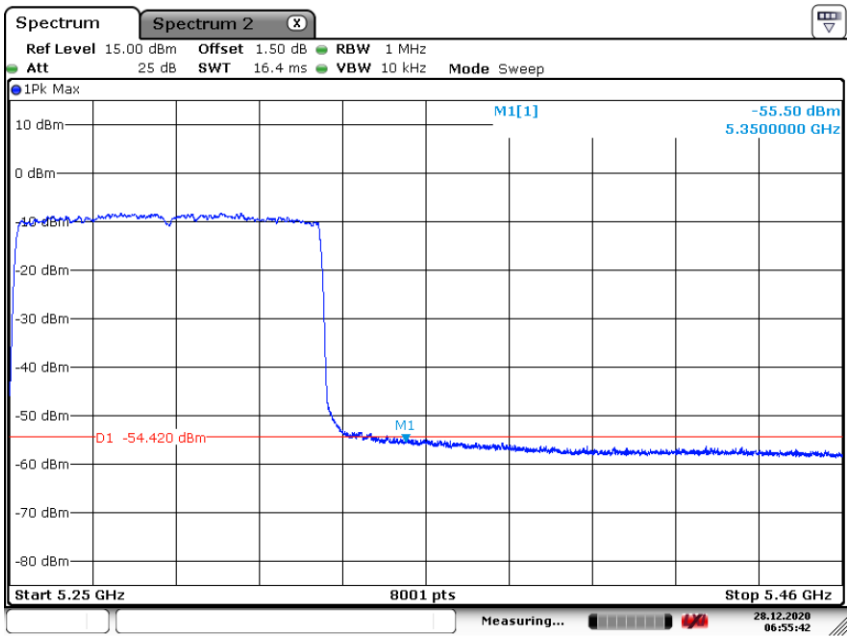
	62	5310	PK  Date: 28.DEC.2020 06:30:28 AV  Date: 28.DEC.2020 06:25:26

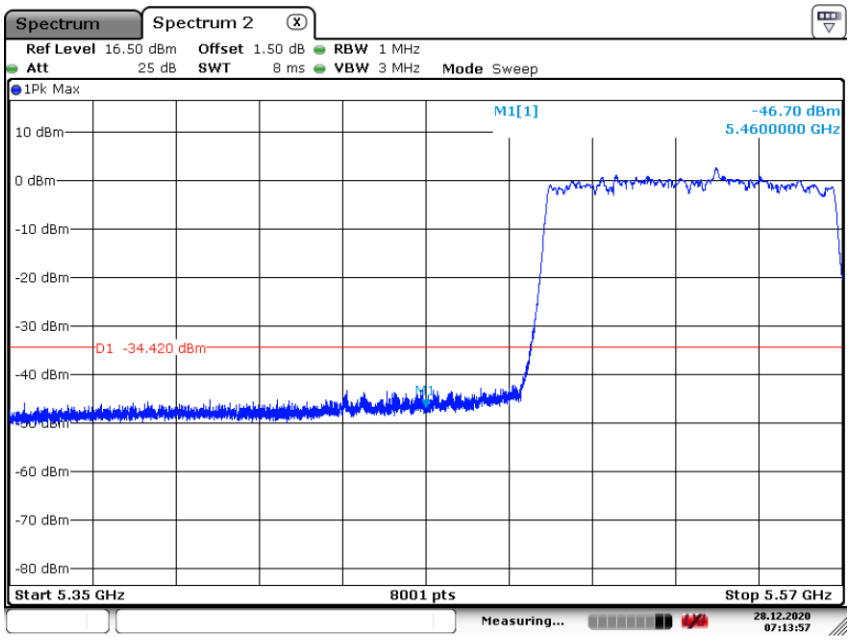
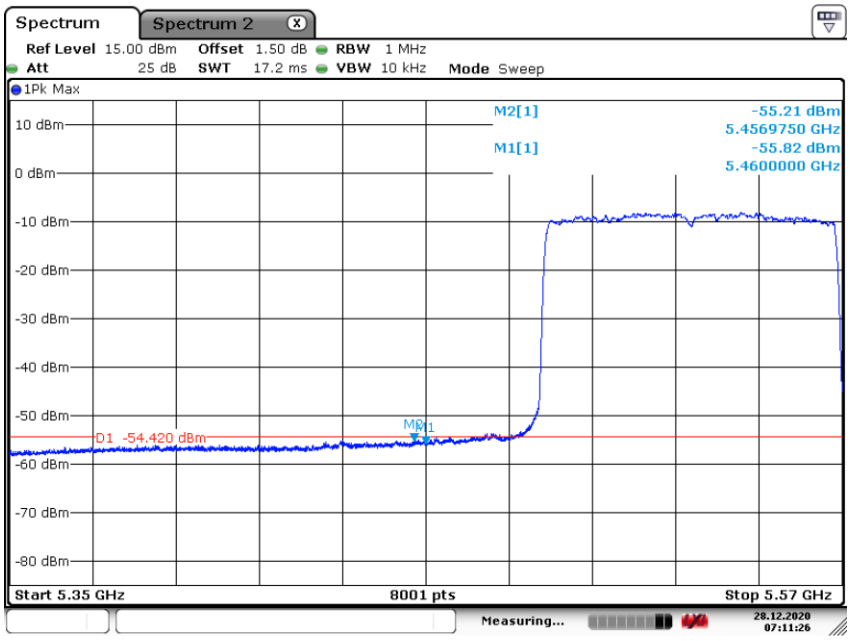
	102	5510	PK  Date: 28.DEC.2020 06:38:29 AV  Date: 28.DEC.2020 06:34:45

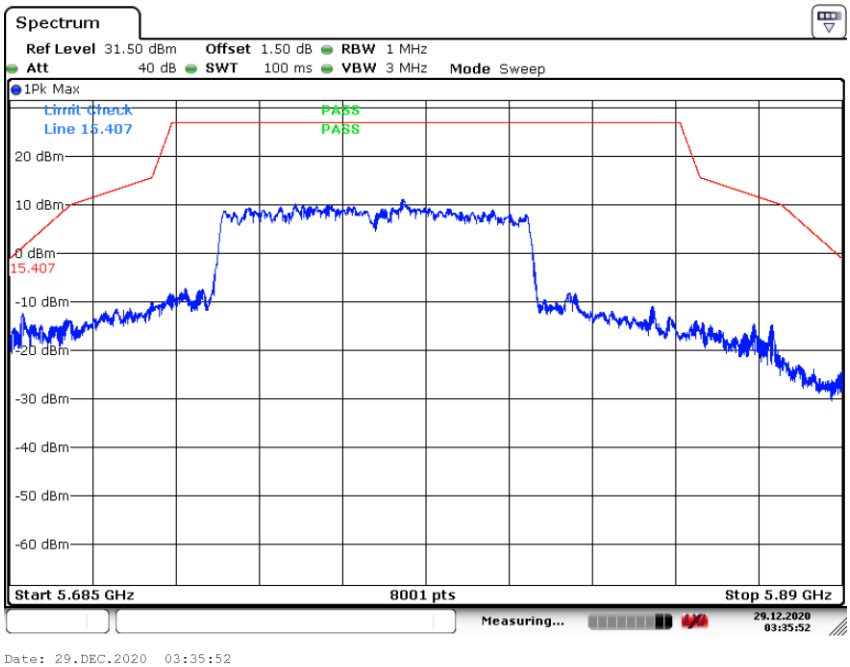
	151	5755	 Date: 29.DEC.2020 03:31:01
	159	5795	 Date: 29.DEC.2020 03:33:25

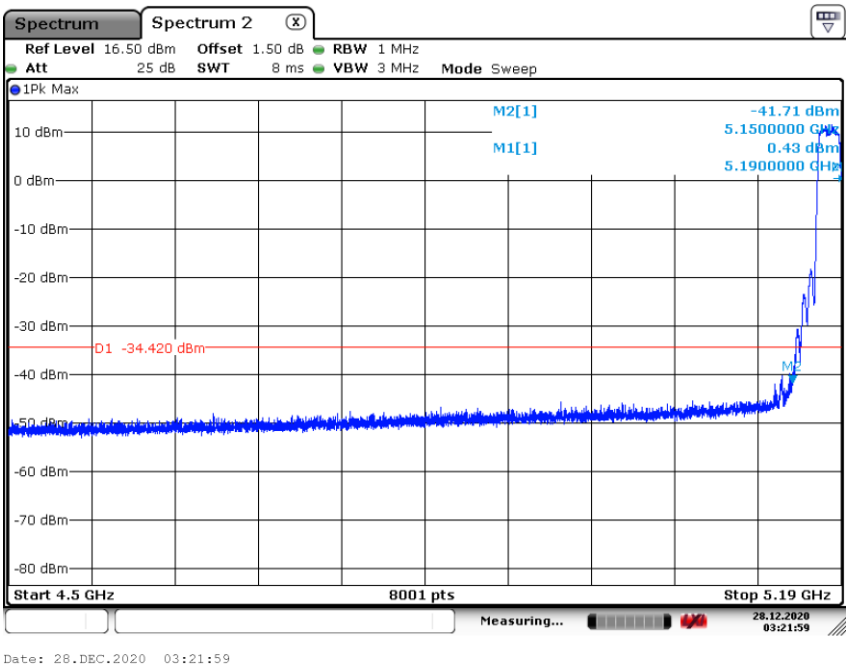
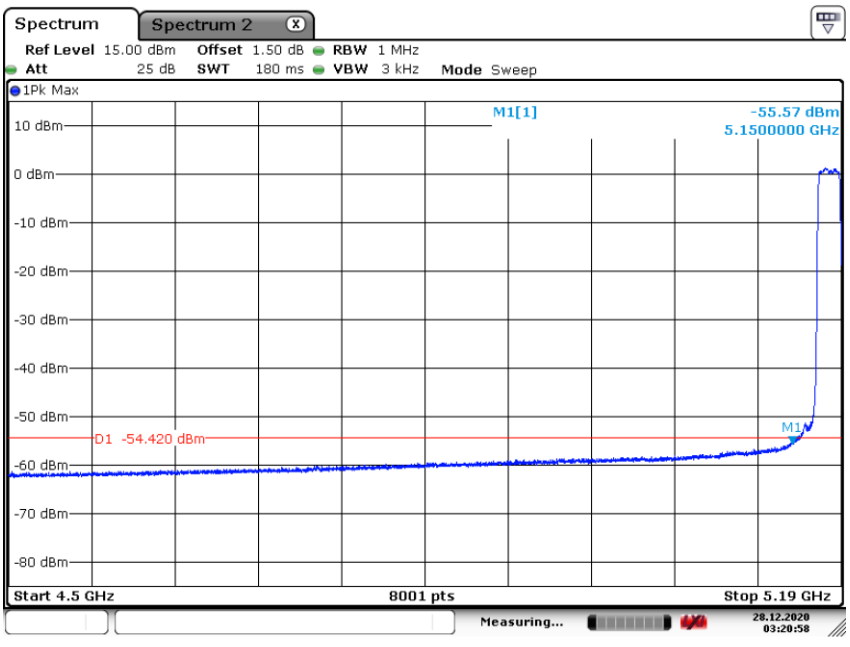
ETH6 CDD 2TX

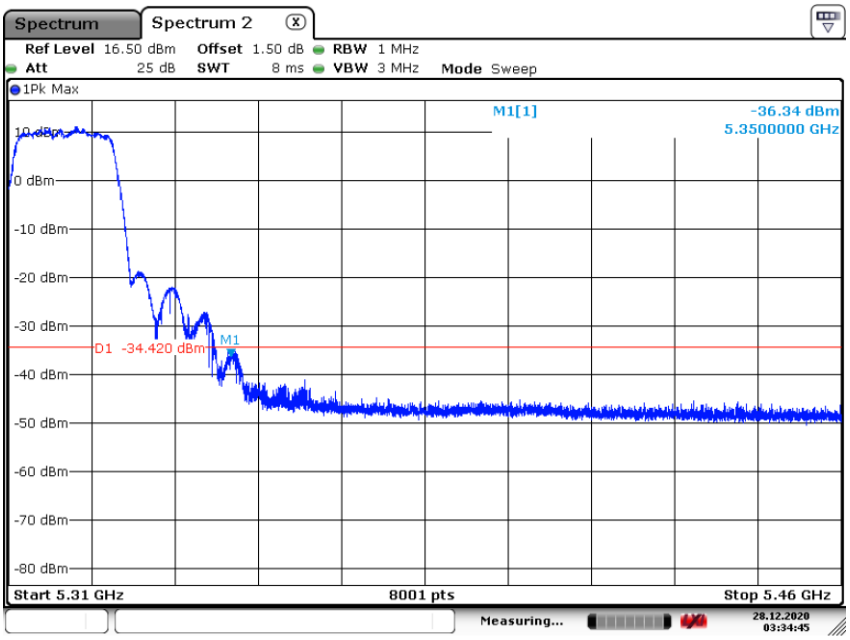
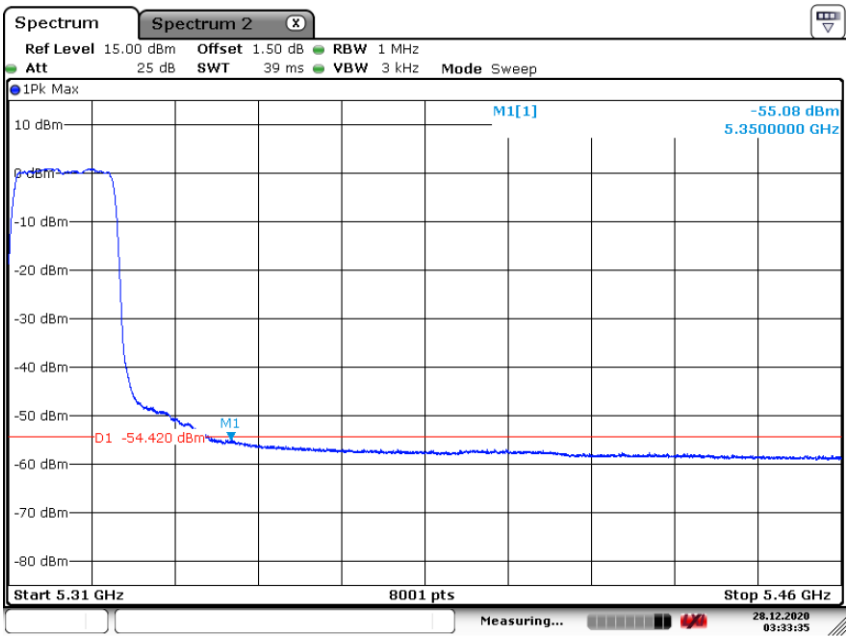
Mode	Channel	Test Frequency (MHz)	Test Plot
6	42	5210	PK  Date: 28.DEC.2020 06:49:55 AV  Date: 28.DEC.2020 06:47:48

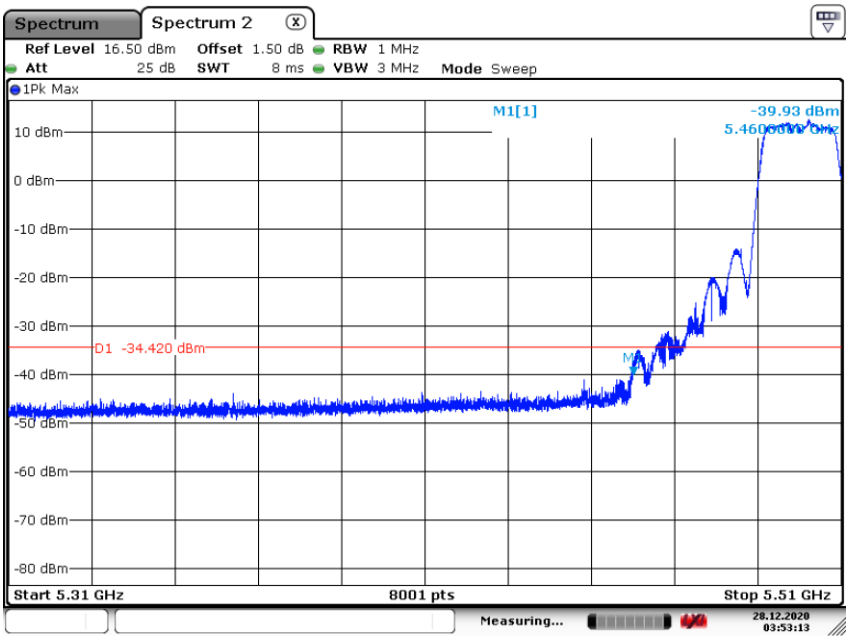
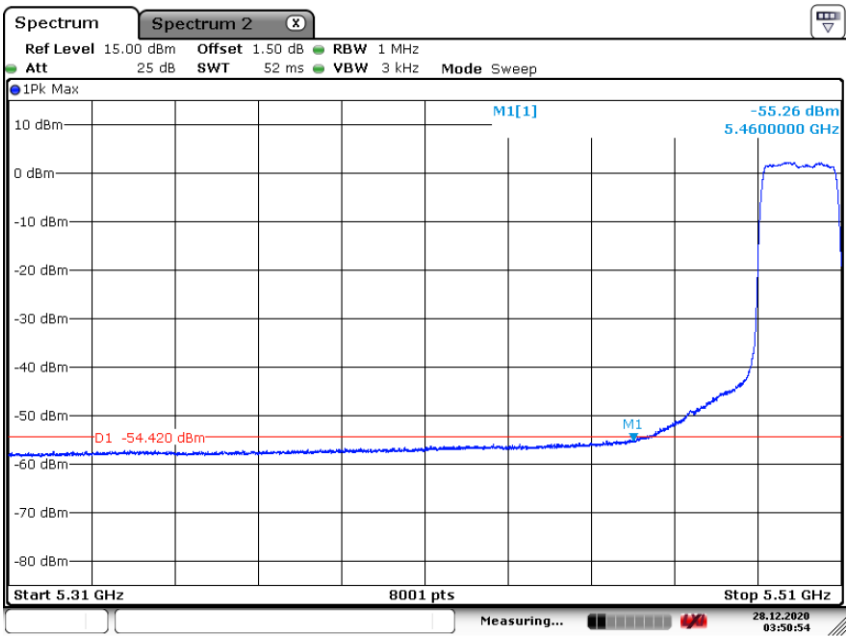
	54	5290	PK  Date: 28.DEC.2020 06:57:40 AV  Date: 28.DEC.2020 06:55:42

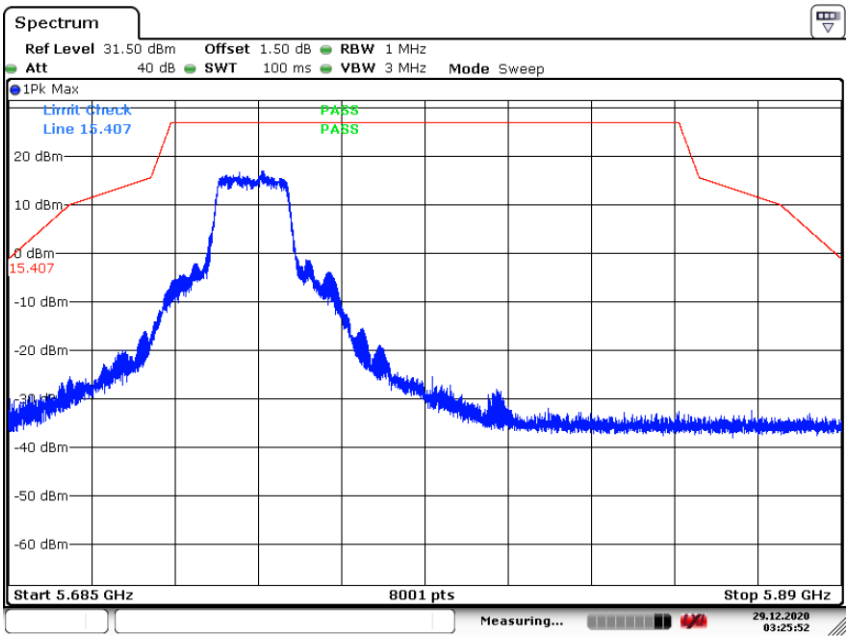
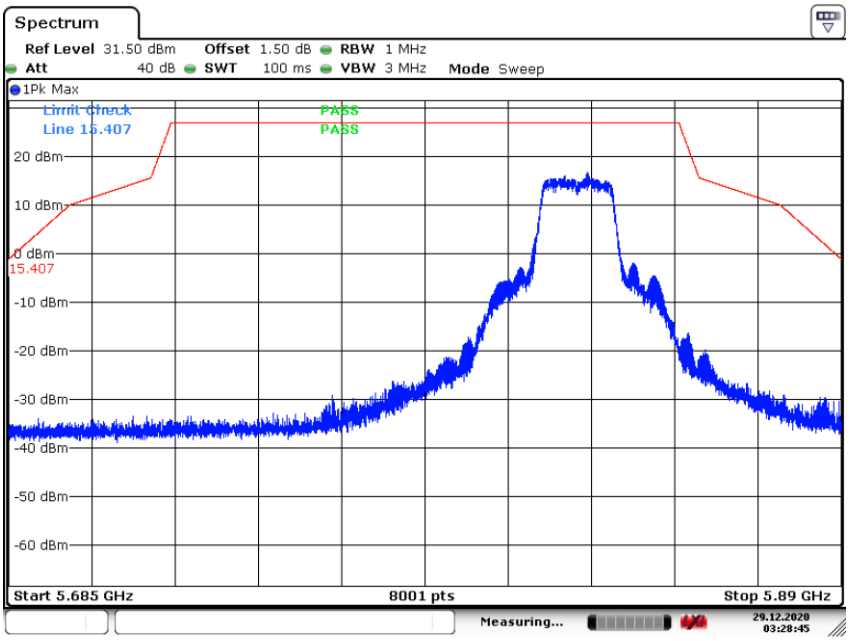
	106	5530	PK  Date: 28.DEC.2020 07:13:57 AV  Date: 28.DEC.2020 07:11:27

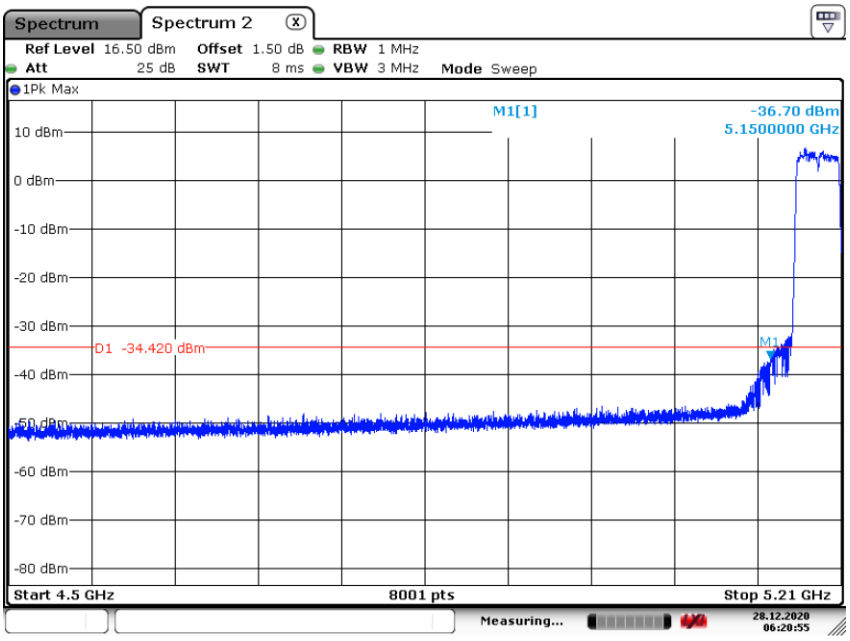
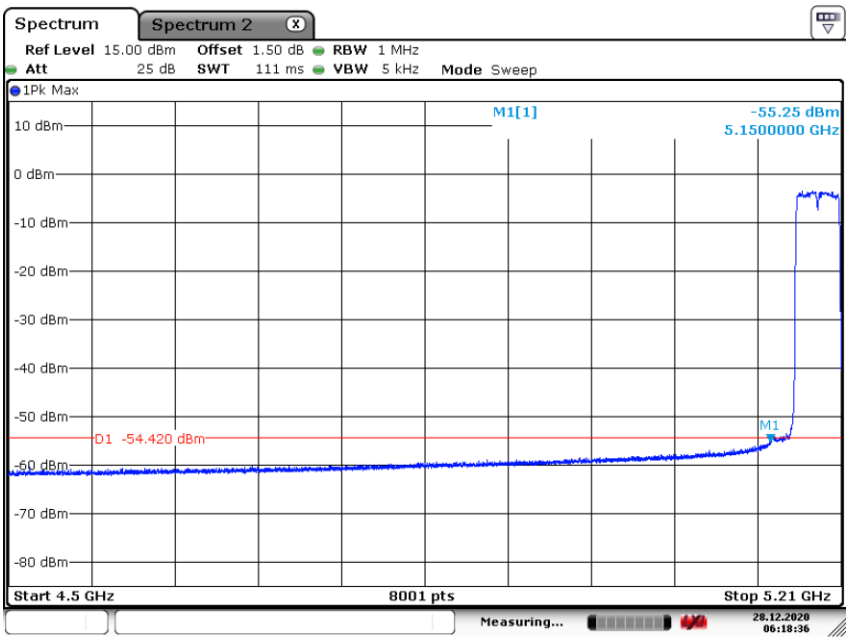
	155	5775	 Spectrum Ref Level 31.50 dBm Offset 1.50 dB RBW 1 MHz Att 40 dB SWT 100 ms VBW 3 MHz Mode Sweep 1Pk Max Limit Check PASS Line 15.407 PASS 20 dBm 10 dBm 0 dBm 15.407 -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm Start 5.685 GHz 8001 pts Stop 5.89 GHz Measuring... 29.12.2020 03:35:52 Date: 29.DEC.2020 03:35:52

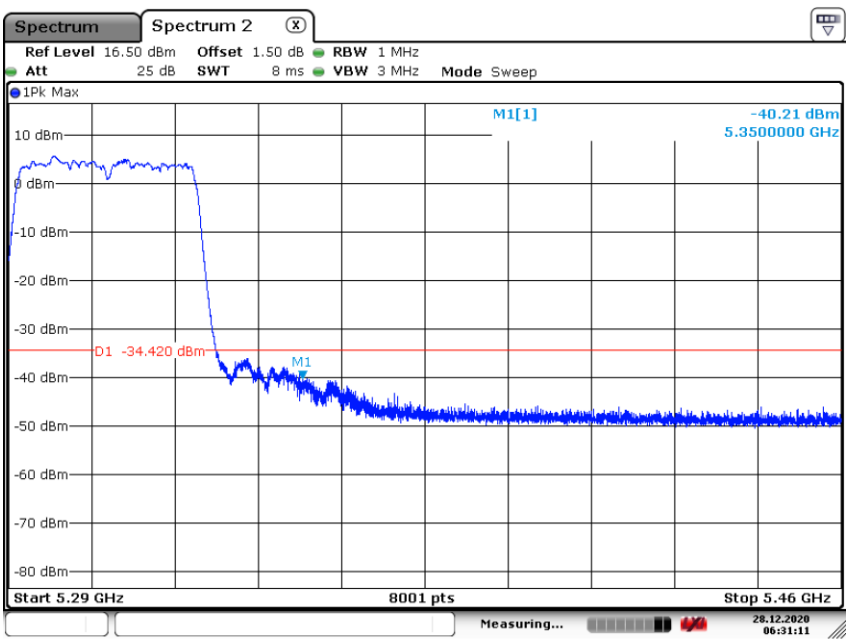
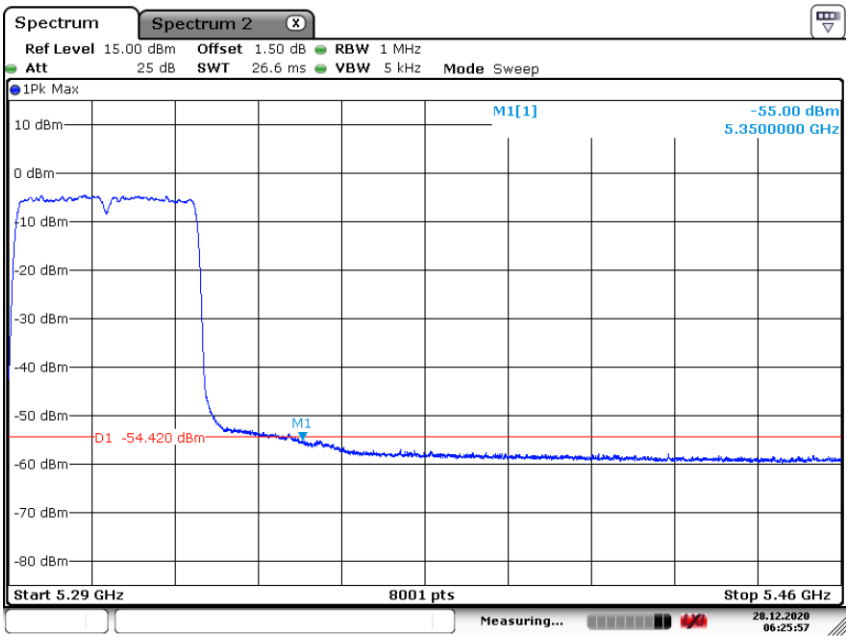
ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
7	36	5180	PK  Date: 28.DEC.2020 03:21:59 AV  Date: 28.DEC.2020 03:20:59

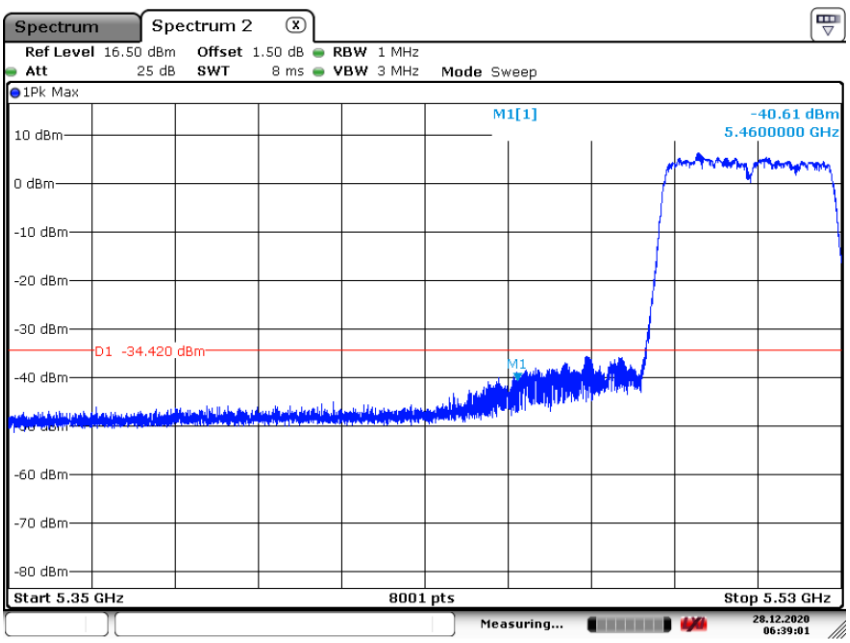
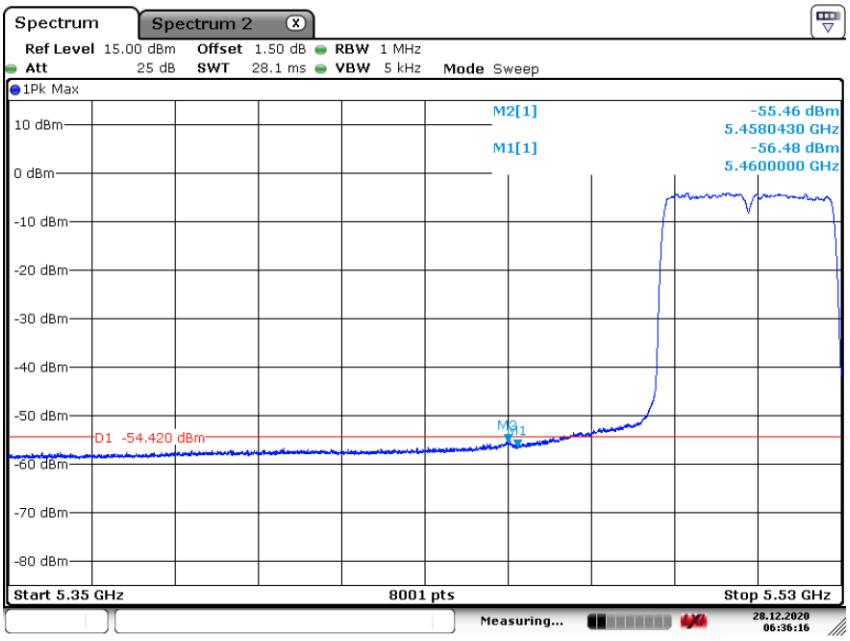
	64	5320	PK  Date: 28.DEC.2020 03:34:45 AV  Date: 28.DEC.2020 03:33:35

	100	5500	PK  Date: 28.DEC.2020 03:53:13 AV  Date: 28.DEC.2020 03:50:54

	149	5745	 Date: 29.DEC.2020 03:25:52
	165	5825	 Date: 29.DEC.2020 03:28:46

ETH6 CDD 2TX			
Mode	Channel	Test Frequency (MHz)	Test Plot
8	38	5190	PK  Date: 28.DEC.2020 06:20:55 AV  Date: 28.DEC.2020 06:18:36

	62	5310	PK  Date: 28.DEC.2020 06:31:11 AV  Date: 28.DEC.2020 06:25:57

	102	5510	PK  Date: 28.DEC.2020 06:39:01 AV  Date: 28.DEC.2020 06:36:16