Report No.: DDT-R21121709-2E04

Issued Date: Apr. 24, 2022

FCC AND ISED CERTIFICATION TEST REPORT

FOR

Applicant	:	Sahara Presentation Systems PLC
Address	:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent, United Kingdom
Equipment under Test	:	Clevershare Hub
Model No.	:	Clevershare Hub
Trade Mark	:	N/A
FCC ID	:	2APKO-WB05
IC	:	25437-WB05
Manufacturer	:	Sahara Presentation Systems PLC
Address	:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent, United Kingdom

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

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REPORT

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Test Report Declare

Applicant	:	Sahara Presentation Systems PLC
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Equipment under Test	:	Clevershare Hub
Model No.	:	Clevershare Hub
Trade Mark	:	N/A
Manufacturer	:	Sahara Presentation Systems PLC
Address	:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent, United Kingdom

Test Standard Used: FCC Rules and Regulations Part 15 Subpart E, RSS-247 Issue 2 February 2017.

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, RSS-Gen Issue 5, Apr. 2018

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC&ISED standards.

Report No:	DDT-R21121709-2E04		
Date of Receipt:	Dec. 22, 2021	**Date of Test:**	Dec. 22, 2021 ~ Apr. 24, 2022

Prepared By: ***Approved By:***

Johnny Wang

Damon Hu

DONGGUAN DONGDIAN TESTING SERVICE CO., LTD. APPROVED

Johnny Wang/Engineer ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Apr. 24, 2022	

1. Summary of test results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	**Standard**	**Results**
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e) RSS-247 Clause 6.2	Pass
Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
Frequency Stability Measurement	FCC 15.407 (g)	Pass
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass
Band Edge Compliance	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass
Power Line Conducted Emission	FCC 15.207 RSS-GEN Clause 8.8	Pass
Antenna requirement	FCC 15.203 RSS-GEN Clause 8.3	Pass
Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	N/A
Note: N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device.		

2. General test information

2.1. Description of EUT

EUT* Name	:	Clevershare Hub
Model Number	:	Clevershare Hub
EUT function description	:	Please reference user manual of this device
Power supply	:	Input: 100-240V ~ 50/60Hz 1.0A Max
Radio Technology	:	IEEE 802.11a/n/ac/ax
FCC Operation frequency	:	IEEE 802.11a: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5755MHz-5755MHz IEEE 802.11ac HT20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11ac HT40: 5190MHz-5230MHz, 5755MHz-5755MHz IEEE 802.11ax HE20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11ax HE40: 5190MHz-5230MHz, 5755MHz-5755MHz
Modulation	:	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDMA(BPSK,QPSK,16QAM,64QAM,256QAM, 1024QAM)
Transmitter rate	:	IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 7.2, 21.7, 43.3, 72.2 Mbps IEEE 802.11n HT40: 15, 45, 90, 150 Mbps IEEE 802.11ac HT20: up to 86.6 Mbps IEEE 802.11ac HT40: up to 200 Mbps IEEE 802.11ax HE20: up to 143.4 Mbps IEEE 802.11ax HE40: up to 286.8 Mbps
Antenna Gain	:	PCB antenna, maximum PK gain: 2.85 dBi
Sample Type	:	Series production
Serial number	:	N/A

Note: EUT is the ab. of equipment under test.

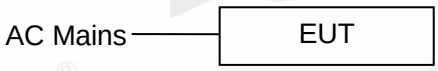
2.2. Accessories of EUT

Assistant equipment	Manufacturer	Model number	Other
Switching adapter	GangQi	GQ36-120300-Ax	Input: 100-240V 50/60Hz 1.0A Max Output: DC 12V3A 36.0W

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



Test software: SecureCRTPortable.exe
The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mpbs) (see Note)	Channel	Frequency (MHz)
IEEE 802.11a	/	6	CH36	5180
	/	6	CH40	5200
	/	6	CH48	5240
	/	6	CH149	5745
	/	6	CH157	5785
	/	6	CH165	5825
IEEE 802.11n HT20	/	MCS 0	CH36	5180
	/	MCS 0	CH40	5200
	/	MCS 0	CH48	5240
	/	MCS 0	CH149	5745
	/	MCS 0	CH157	5785
	/	MCS 0	CH165	5825
IEEE 802.11n HT40	/	MCS 0	CH38	5190
	/	MCS 0	CH46	5230
	/	MCS 0	CH151	5755
	/	MCS 0	CH159	5795
IEEE 802.11ac HT20	/	MCS 0	CH36	5180
	/	MCS 0	CH40	5200
	/	MCS 0	CH48	5240
	/	MCS 0	CH149	5745
	/	MCS 0	CH157	5785
	/	MCS 0	CH165	5825
IEEE 802.11ac HT40	/	MCS 0	CH38	5190
	/	MCS 0	CH46	5230
	/	MCS 0	CH151	5755
	/	MCS 0	CH159	5795
IEEE 802.11ax HE20	/	MCS 0	CH36	5180
	/	MCS 0	CH40	5200
	/	MCS 0	CH48	5240
	/	MCS 0	CH149	5745
	/	MCS 0	CH157	5785
	/	MCS 0	CH165	5825
IEEE 802.11ax HE40	/	MCS 0	CH38	5190
	/	MCS 0	CH46	5230
	/	MCS 0	CH151	5755
	/	MCS 0	CH159	5795
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.				

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

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

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7 x 10^{-8} (Antenna couple method)
	5.5 x 10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz≤ f < 22 GHz)
Uncertainty for radio frequency (RBW<20kHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz-18 GHz)

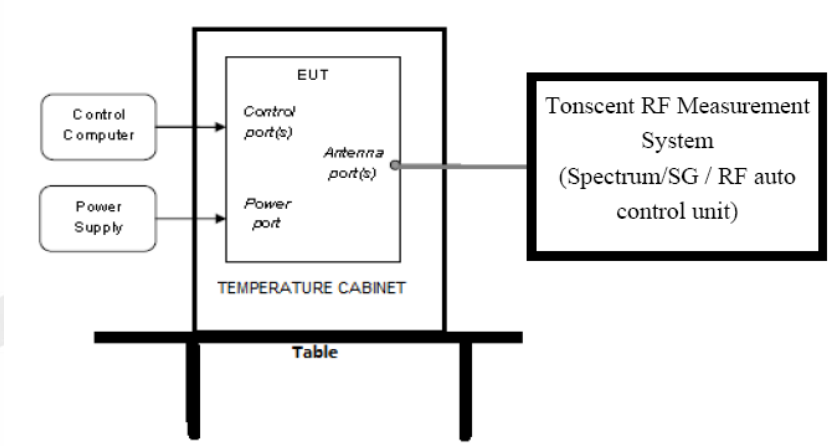
	3.54 dB (18 GHz-26 GHz)
	4.30 dB (26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒RF Connected Test (Tonscend RF Measurement System 3#)					
Signal analyzer	R&S	FSQ26	101272	Jun. 01, 2021	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jun. 01, 2021	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	Jun. 01, 2021	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	Jun. 01, 2021	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	Jun. 01, 2021	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jun. 01, 2021	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.6.77.0518	N/A	N/A
☒Radiation 3#chamber					
EMI Test Receiver	R&S	ESU	100472	Jun. 01, 2021	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 01, 2021	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 19, 2021	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	01429	Aug. 07, 2021	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 17, 2021	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 08, 2021	1 Year
Pre-amplifier	COM-POWER	PAM-118A	18040084	Sep. 02, 2021	1 Year
Pre-amplifier	COM-POWER	PAM-840A	461369	Mar. 15, 2022	1 Year
Test software	Audix	E3	V 6.1.1.1	N/A	N/A
☒Power Line Conducted Emissions Test 1#					
Test Receiver	R&S	ESCI	100551	Sep. 02, 2021	1 Year
LISN 1	R&S	ENV216	101109	Sep. 02, 2021	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 02, 2021	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 02, 2021	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 02, 2021	1 Year
LISN 3	SCHWARZBECK	NSLK 8163	00017	Sep. 02, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150-5250
	26 dB Bandwidth	5250-5350
	26 dB Bandwidth	For FCC:5470-5725 For IC:5470-5600 5650-5725
	Minimum 500kHz 6dB Bandwidth	5725-5850

4.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: approximately 1% of the emission bandwidth.
VBW	For 6 dB Bandwidth: VBW=300 kHz For 26 dB Bandwidth: >3 RBW
Trace	Max hold
Sweep	Auto couple

(2) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB and 6 dB relative to the maximum level measured in the fundamental emission.

4.4. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.44	5170.280	5189.720	---	Pass
		5200	17.96	5191.040	5209.000	---	Pass
		5240	17.96	5231.120	5249.080	---	Pass
		5745	17.96	5736.080	5754.040	---	Pass
		5785	17.96	5776.000	5793.960	---	Pass
		5825	18.00	5816.040	5834.040	---	Pass
11N20SISO	Ant1	5180	18.68	5170.640	5189.320	---	Pass
		5200	18.68	5190.600	5209.280	---	Pass
		5240	18.64	5230.680	5249.320	---	Pass
		5745	18.64	5735.560	5754.200	---	Pass
		5785	18.72	5775.520	5794.240	---	Pass
		5825	18.80	5815.600	5834.400	---	Pass
11N40SISO	Ant1	5190	38.48	5170.800	5209.280	---	Pass
		5230	36.64	5211.680	5248.320	---	Pass
		5755	36.64	5736.600	5773.240	---	Pass
		5795	36.56	5776.600	5813.160	---	Pass
11AC20SISO	Ant1	5180	18.60	5170.640	5189.240	---	Pass
		5200	18.96	5190.640	5209.600	---	Pass
		5240	18.96	5230.560	5249.520	---	Pass
		5745	18.68	5735.600	5754.280	---	Pass
		5785	18.68	5775.600	5794.280	---	Pass
		5825	18.80	5815.680	5834.480	---	Pass
11AC40SISO	Ant1	5190	36.88	5171.600	5208.480	---	Pass
		5230	36.72	5211.600	5248.320	---	Pass
		5755	38.80	5735.400	5774.200	---	Pass
		5795	38.64	5775.400	5814.040	---	Pass
11AX20SISO	Ant1	5180	19.44	5170.200	5189.640	---	Pass
		5200	19.52	5190.240	5209.760	---	Pass
		5240	19.56	5230.200	5249.760	---	Pass
		5745	19.44	5735.240	5754.680	---	Pass
		5785	19.40	5775.240	5794.640	---	Pass
		5825	19.52	5815.240	5834.760	---	Pass
11AX40SISO	Ant1	5190	39.44	5170.160	5209.600	---	Pass
		5230	38.08	5210.880	5248.960	---	Pass
		5755	39.20	5735.160	5774.360	---	Pass
		5795	38.00	5775.880	5813.880	---	Pass

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	25.12	5167.08	5192.20	---	Pass
		5200	25.76	5187.08	5212.84	---	Pass
		5240	25.84	5227.28	5253.12	---	Pass
		5745	25.96	5731.96	5757.92	---	Pass
		5785	25.88	5771.96	5797.84	---	Pass
		5825	26.16	5812.00	5838.16	---	Pass
11N20SISO	Ant1	5180	25.44	5167.52	5192.96	---	Pass
		5200	25.76	5187.16	5212.92	---	Pass
		5240	25.56	5227.36	5252.92	---	Pass

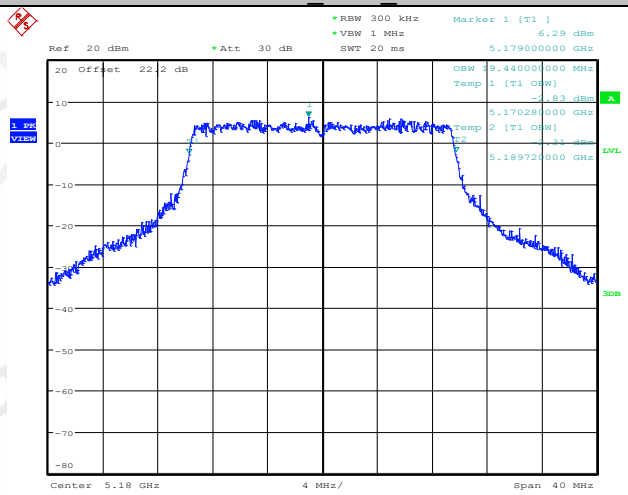
		5745	25.96	5731.84	5757.80	---	Pass
		5785	25.52	5772.00	5797.52	---	Pass
		5825	25.92	5811.72	5837.64	---	Pass
11N40SISO	Ant1	5190	49.92	5165.52	5215.44	---	Pass
		5230	53.04	5204.00	5257.04	---	Pass
		5755	53.12	5728.52	5781.64	---	Pass
		5795	51.84	5769.16	5821.00	---	Pass
11AC20SISO	Ant1	5180	25.40	5167.28	5192.68	---	Pass
		5200	25.76	5187.44	5213.20	---	Pass
		5240	26.12	5227.36	5253.48	---	Pass
		5745	25.40	5732.32	5757.72	---	Pass
		5785	25.44	5772.32	5797.76	---	Pass
		5825	25.52	5812.52	5838.04	---	Pass
11AC40SISO	Ant1	5190	54.48	5163.04	5217.52	---	Pass
		5230	53.92	5203.52	5257.44	---	Pass
		5755	51.28	5729.56	5780.84	---	Pass
		5795	51.76	5769.40	5821.16	---	Pass
11AX20SISO	Ant1	5180	25.24	5167.20	5192.44	---	Pass
		5200	25.24	5187.20	5212.44	---	Pass
		5240	25.80	5227.20	5253.00	---	Pass
		5745	24.92	5732.36	5757.28	---	Pass
		5785	24.88	5772.32	5797.20	---	Pass
		5825	24.92	5812.52	5837.44	---	Pass
11AX40SISO	Ant1	5190	47.76	5165.68	5213.44	---	Pass
		5230	49.92	5204.96	5254.88	---	Pass
		5755	47.92	5730.84	5778.76	---	Pass
		5795	50.32	5769.24	5819.56	---	Pass

Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.32	5736.80	5753.12	0.5	Pass
		5785	16.28	5776.80	5793.08	0.5	Pass
		5825	16.32	5816.80	5833.12	0.5	Pass
11N20SISO	Ant1	5745	17.52	5736.20	5753.72	0.5	Pass
		5785	17.52	5776.20	5793.72	0.5	Pass
		5825	17.56	5816.20	5833.76	0.5	Pass
11N40SISO	Ant1	5755	35.76	5736.84	5772.60	0.5	Pass
		5795	35.76	5776.76	5812.52	0.5	Pass
11AC20SISO	Ant1	5745	17.28	5736.20	5753.48	0.5	Pass
		5785	17.52	5776.20	5793.72	0.5	Pass
		5825	17.56	5816.20	5833.76	0.5	Pass
11AC40SISO	Ant1	5755	36.00	5736.84	5772.84	0.5	Pass
		5795	35.76	5776.76	5812.52	0.5	Pass
11AX20SISO	Ant1	5745	18.88	5735.52	5754.40	0.5	Pass
		5785	18.84	5775.56	5794.40	0.5	Pass
		5825	18.92	5815.56	5834.48	0.5	Pass
11AX40SISO	Ant1	5755	37.84	5735.96	5773.80	0.5	Pass
		5795	36.96	5776.04	5813.00	0.5	Pass

4.5. Original test data

99% OBW:

11A_Ant1_5180



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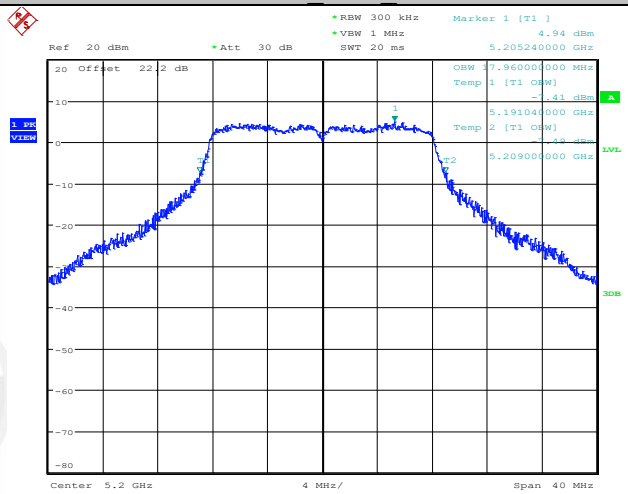

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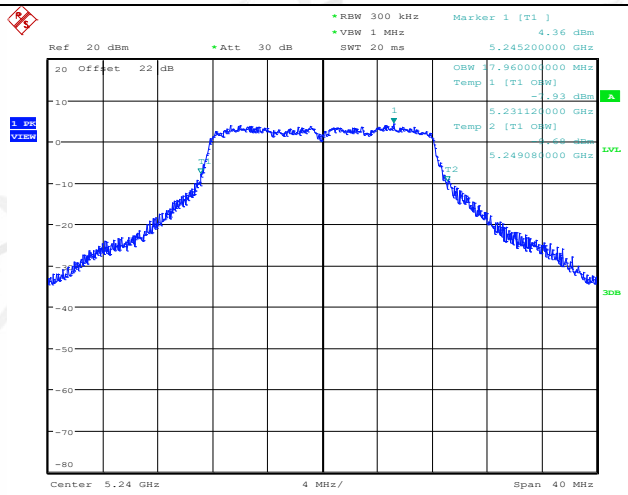

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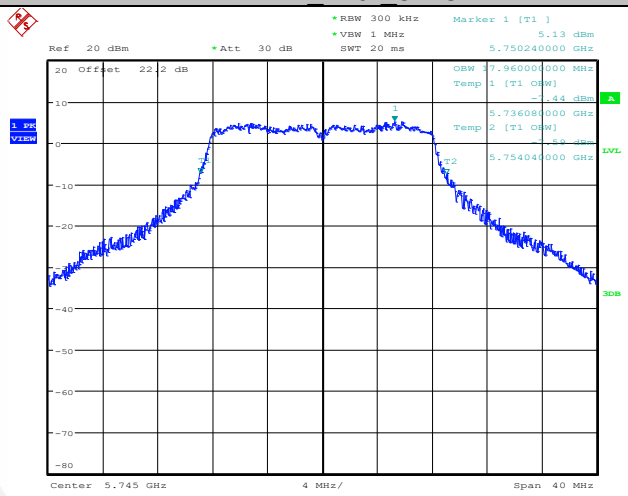
11A_Ant1_5745



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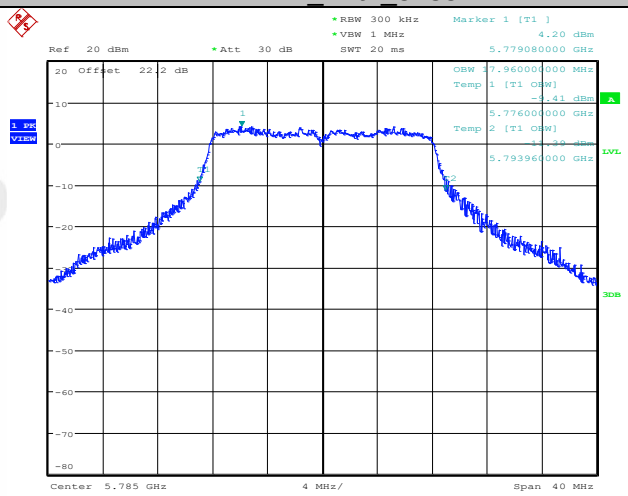
11A_Ant1_5785



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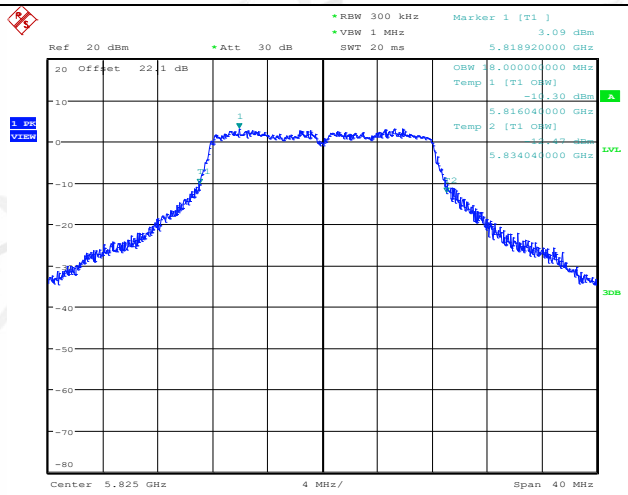
11A_Ant1_5825



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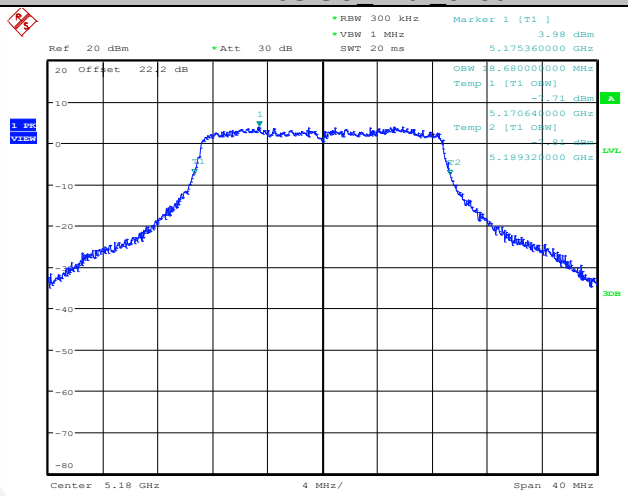
11N20SISO_Ant1_5180



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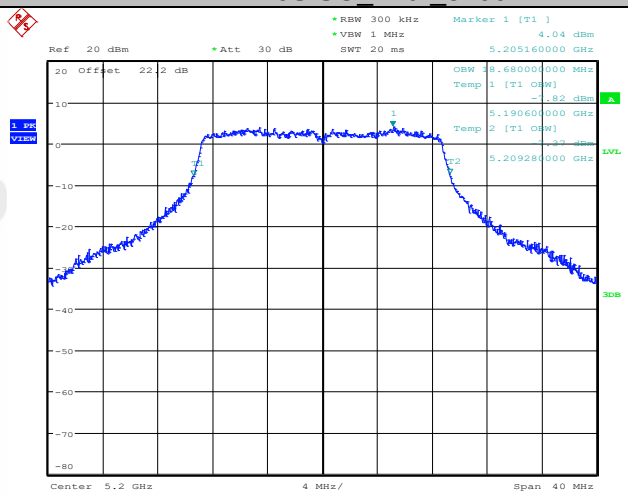

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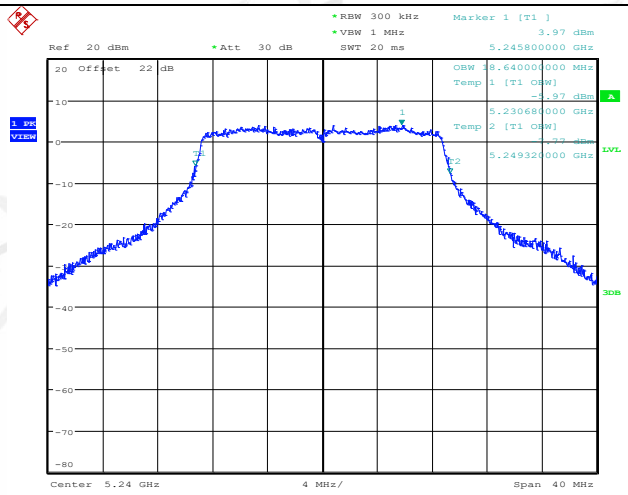

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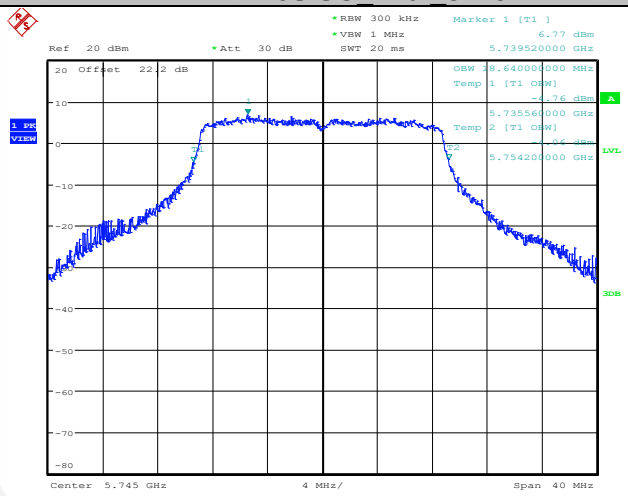

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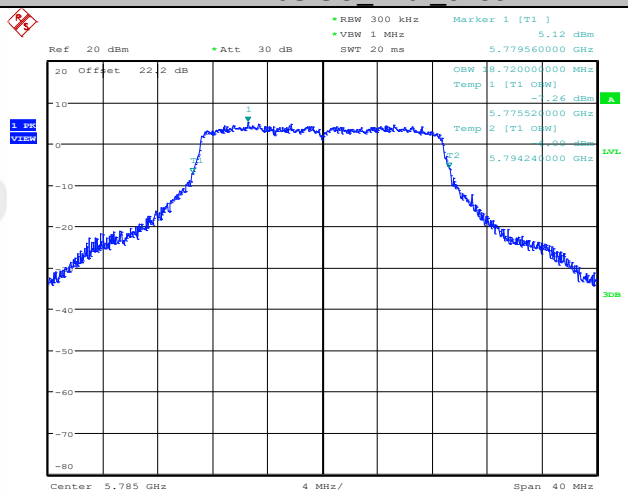

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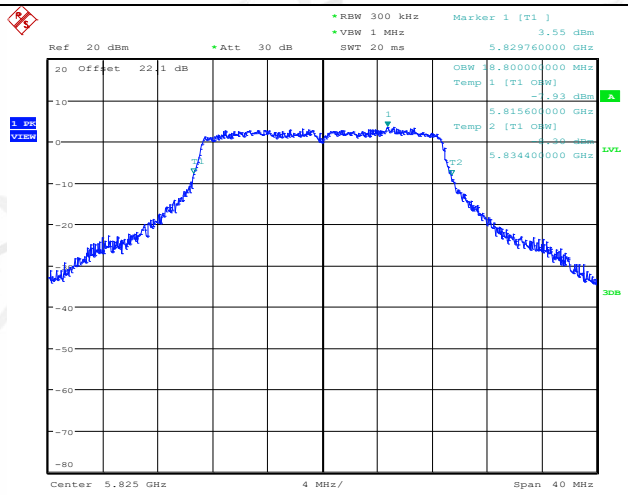

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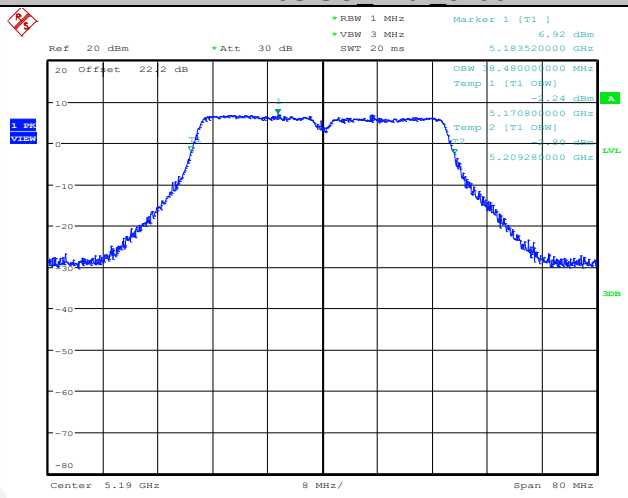

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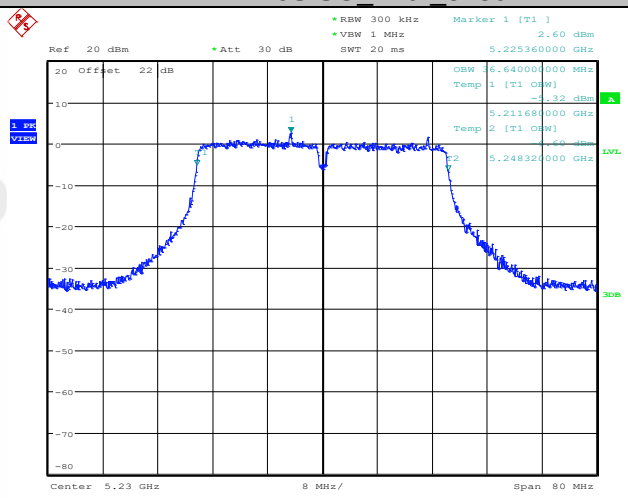

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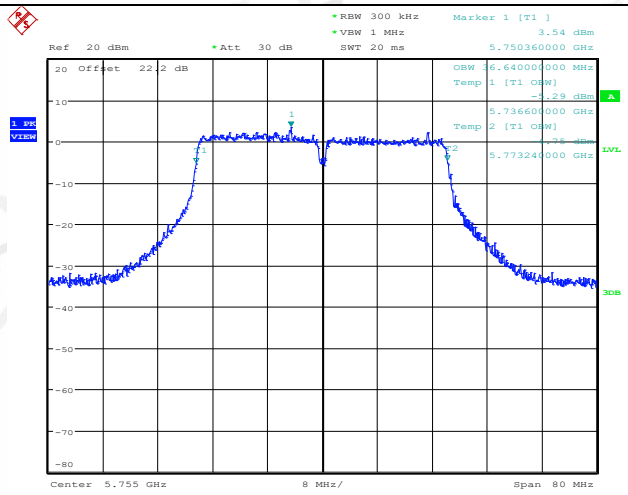

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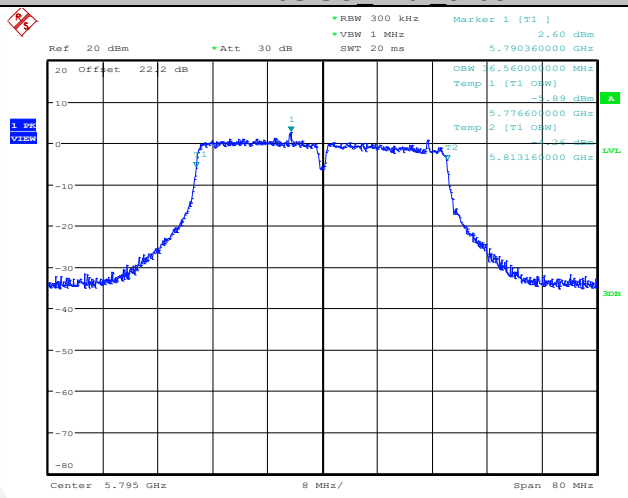

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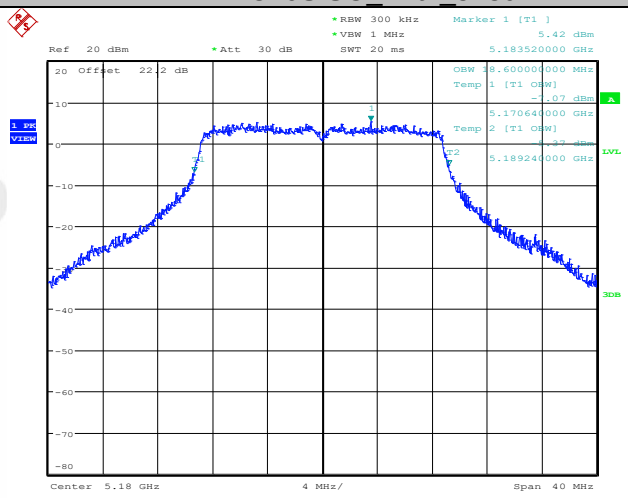

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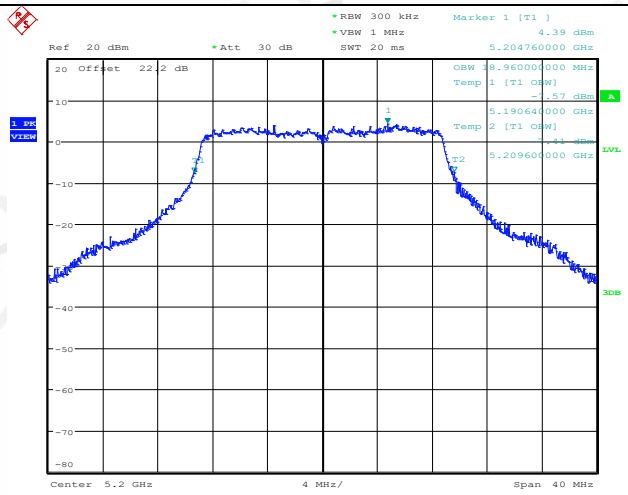

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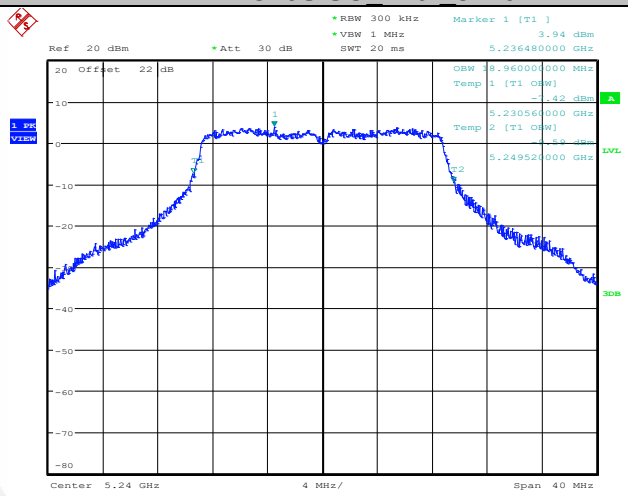

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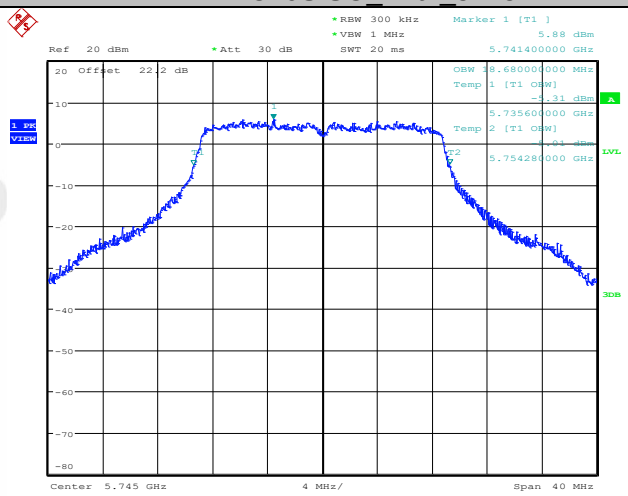

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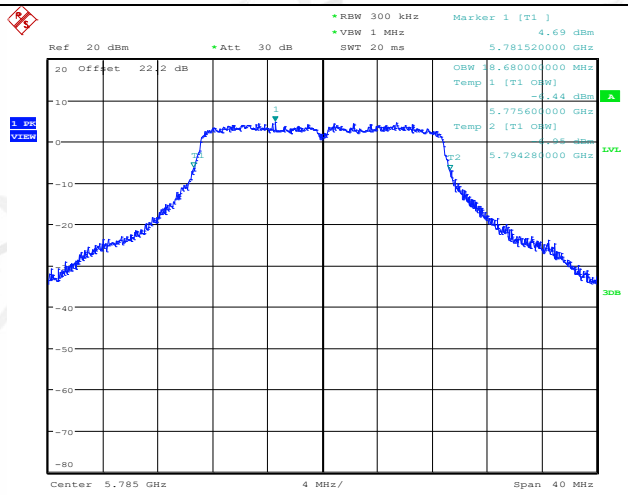

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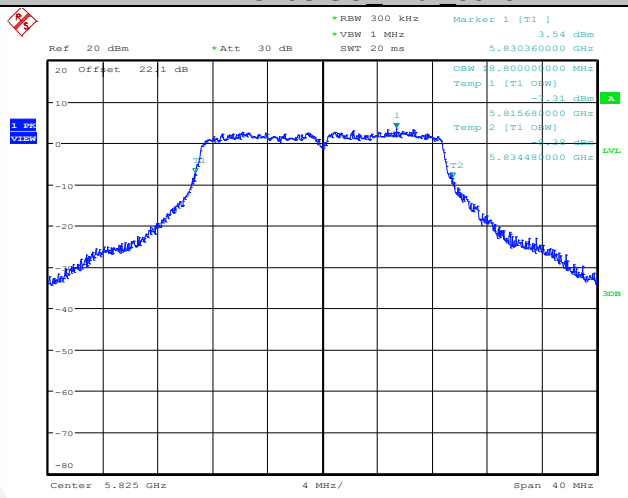

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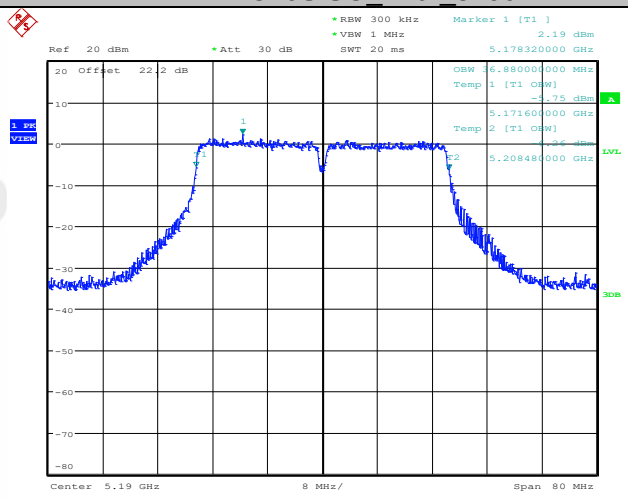

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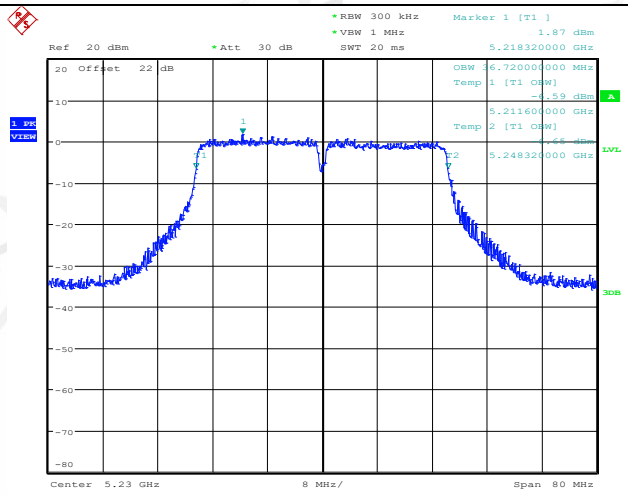

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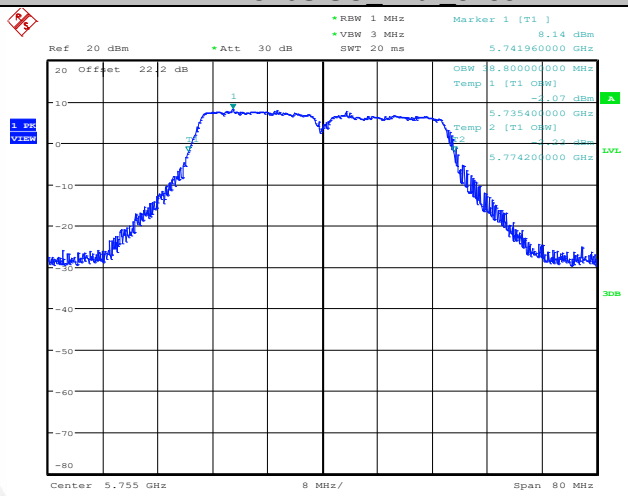

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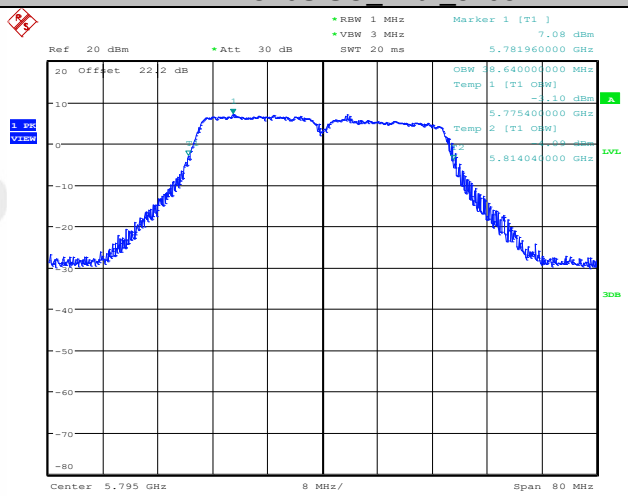

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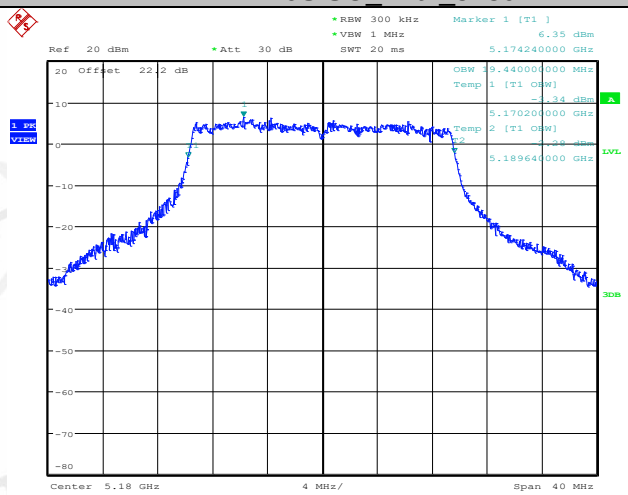

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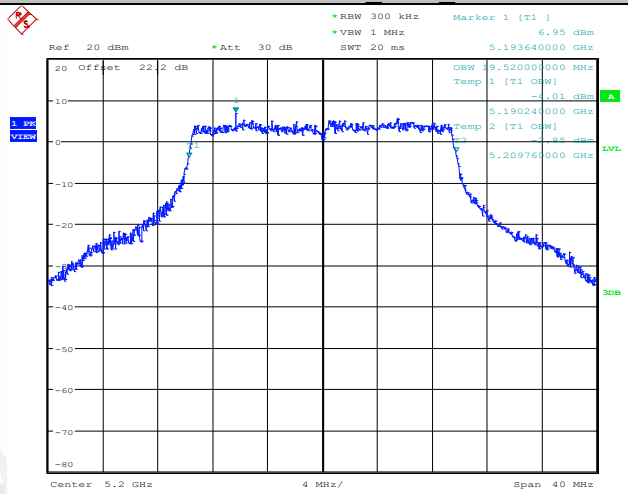

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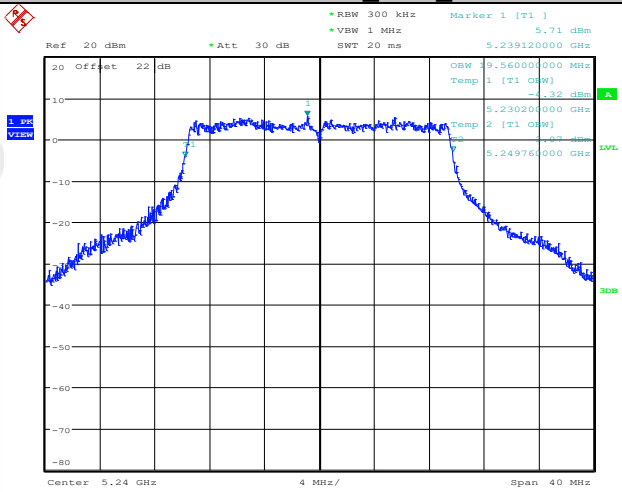

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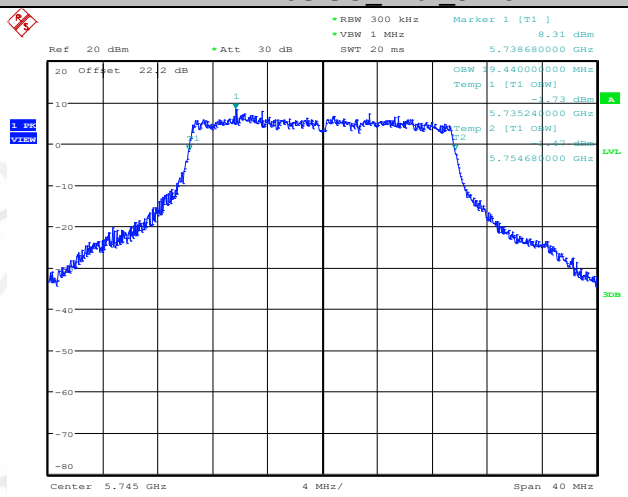

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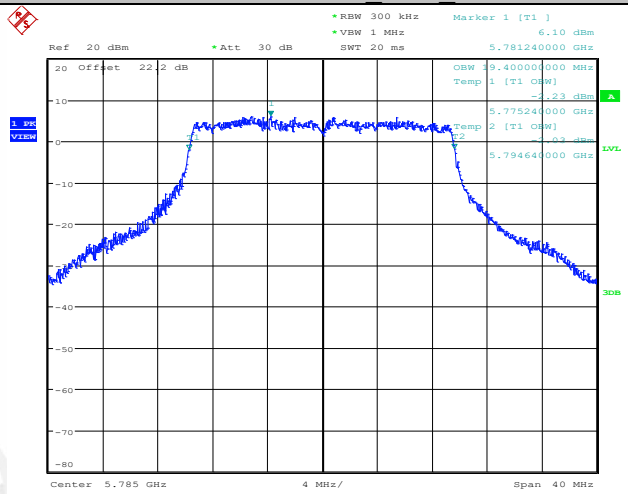

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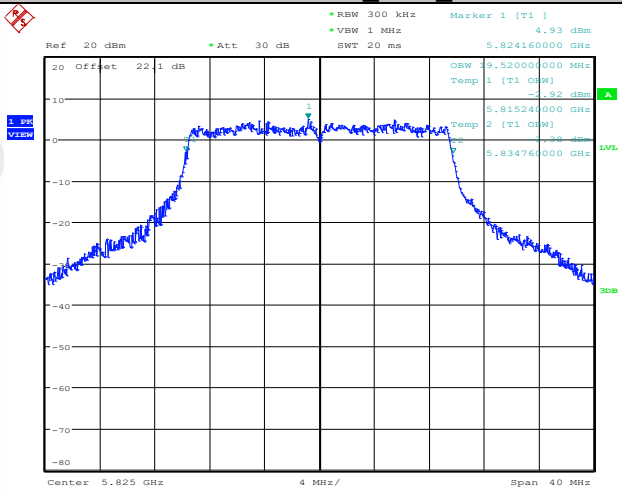

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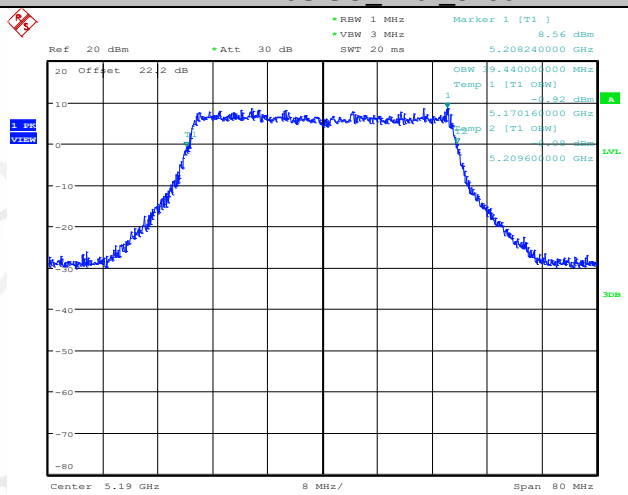

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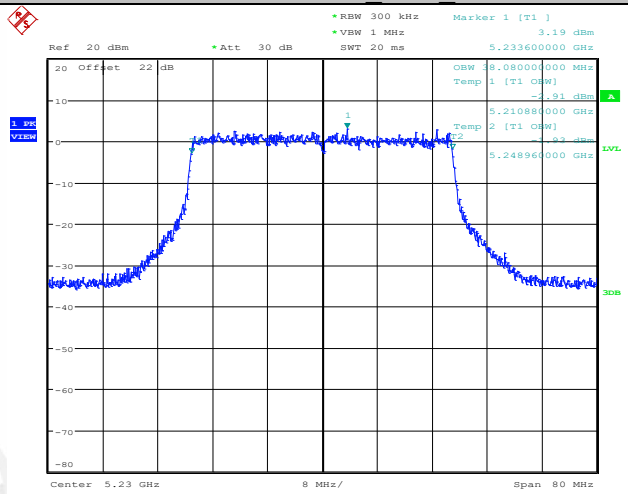

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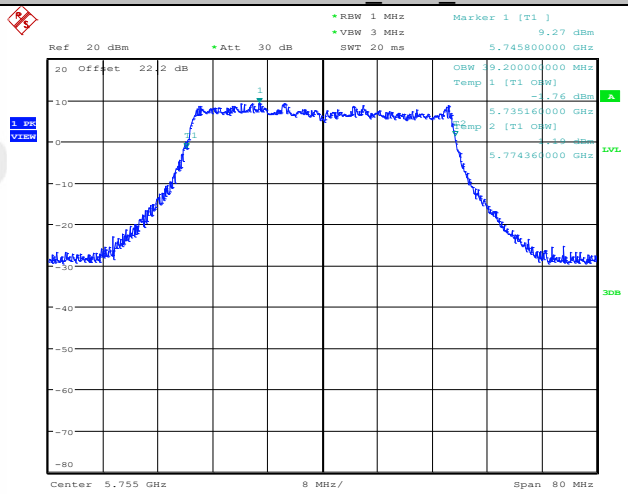

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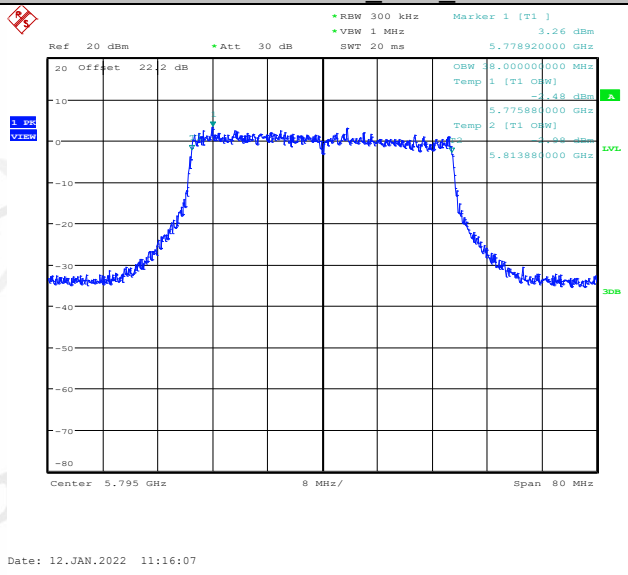

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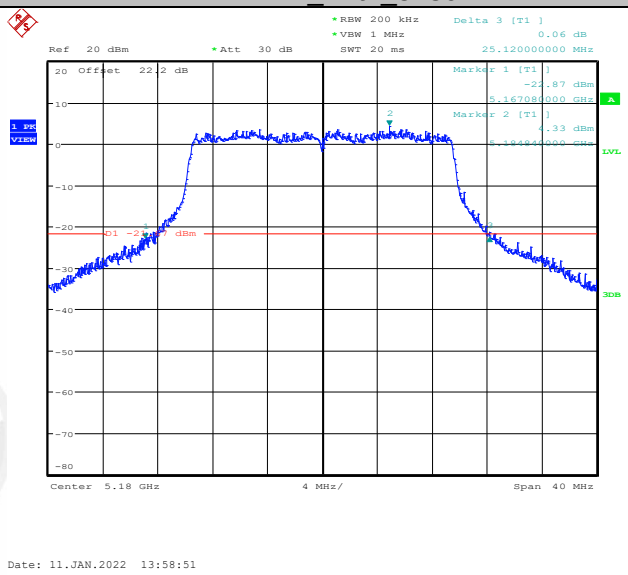

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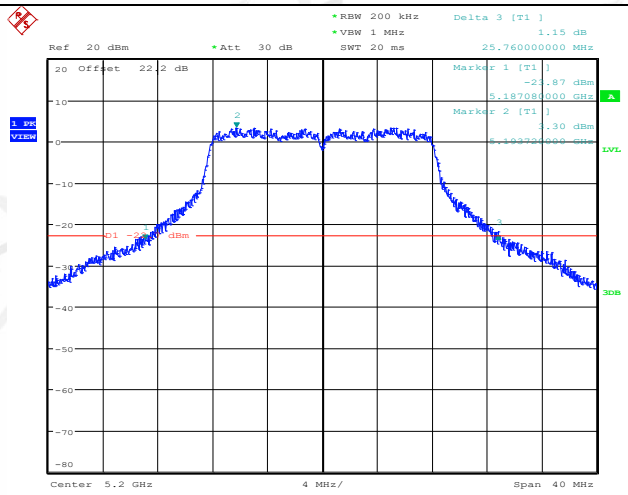

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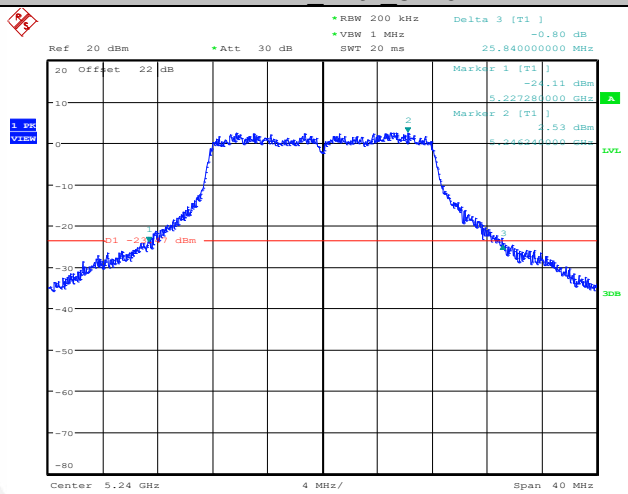

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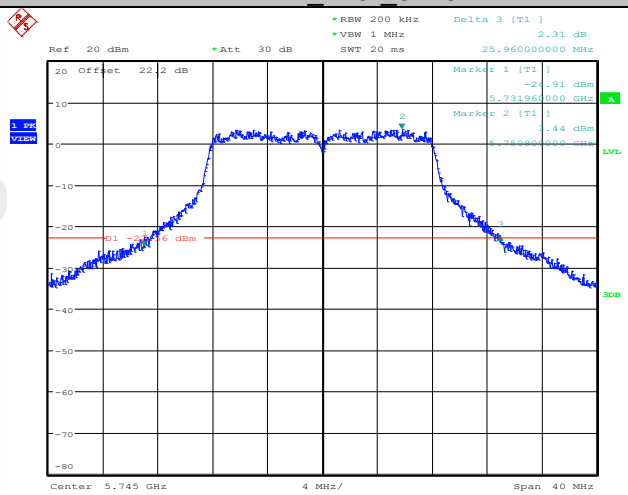

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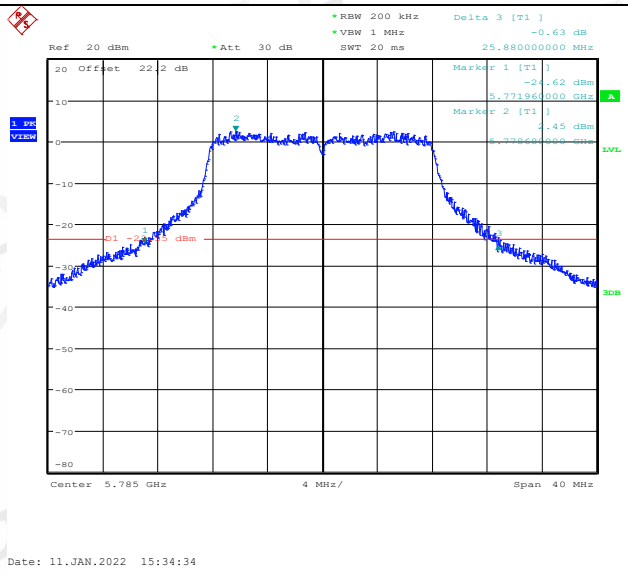

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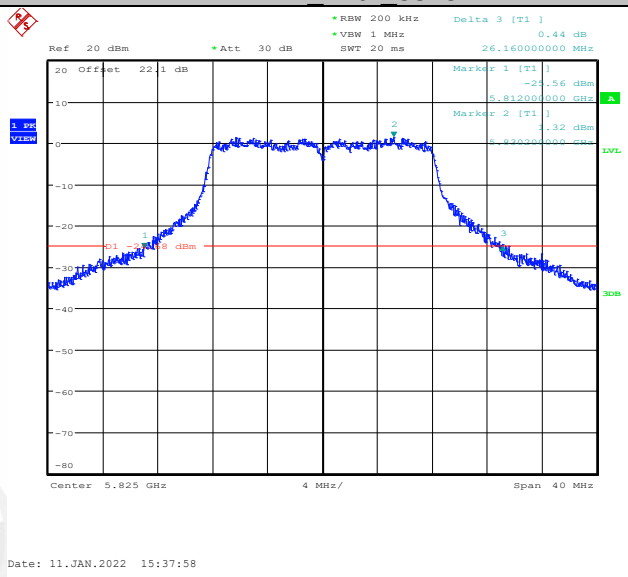

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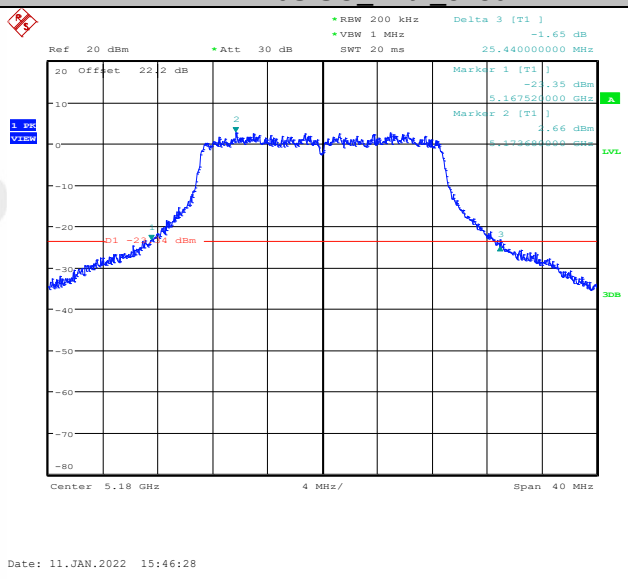

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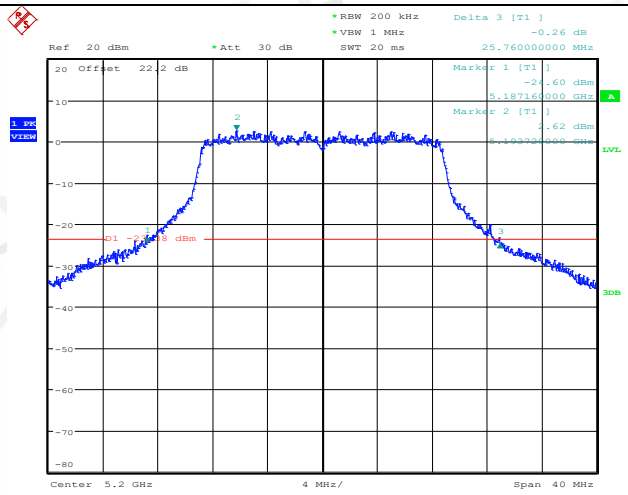

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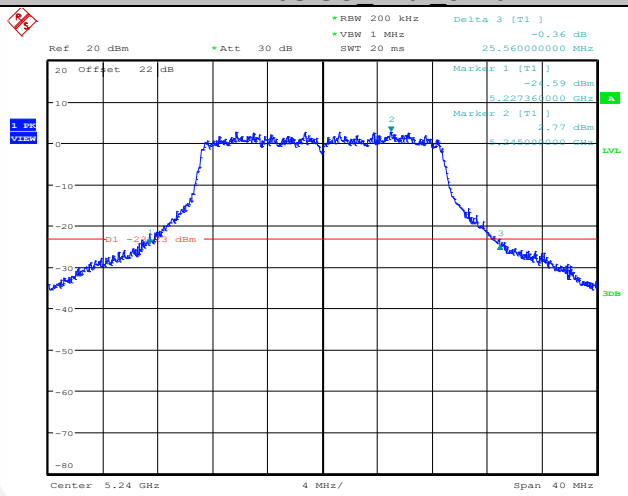

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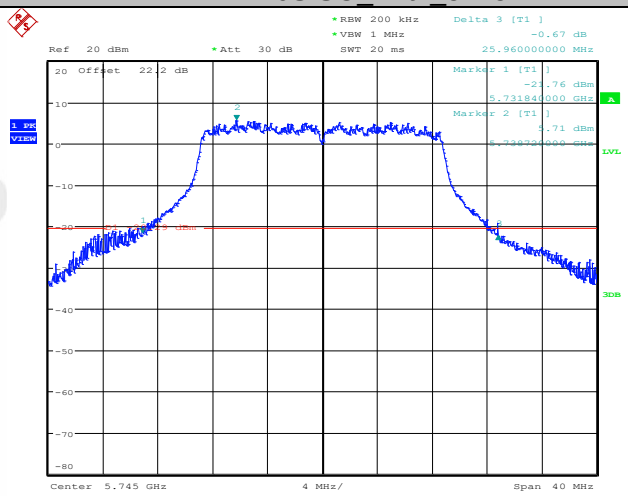

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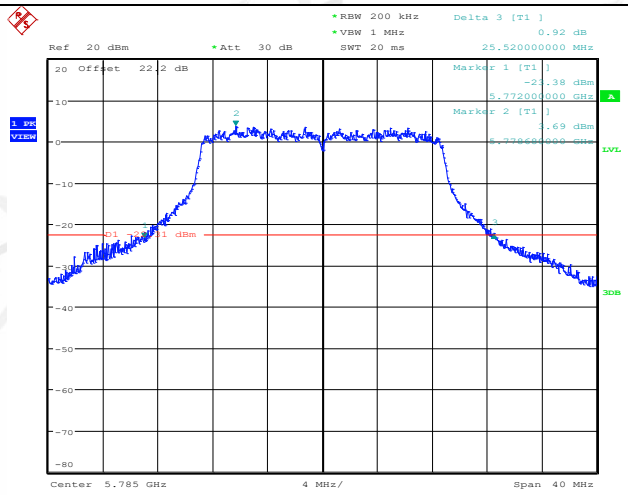

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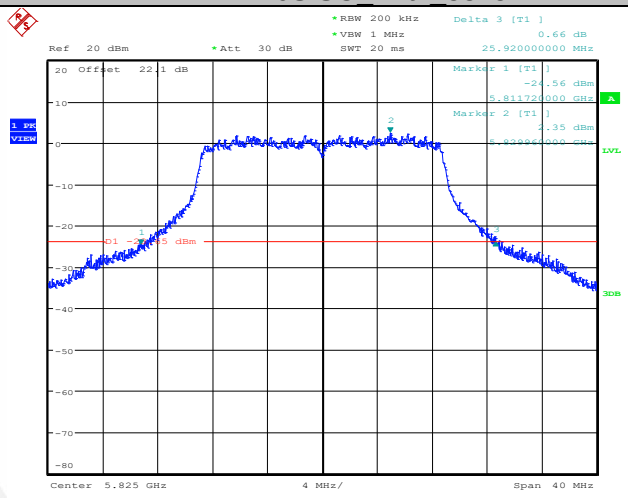

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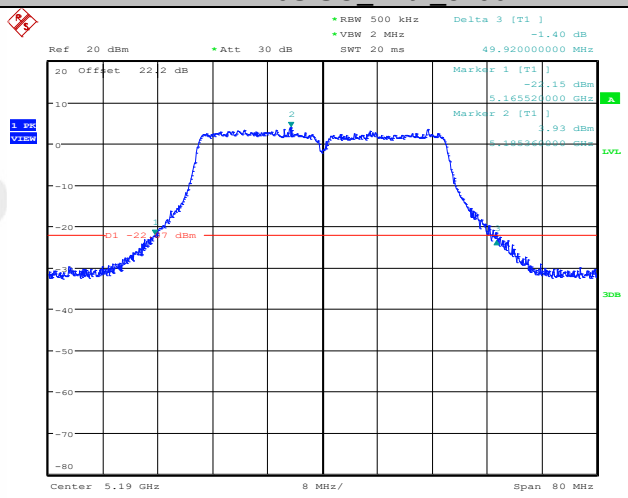

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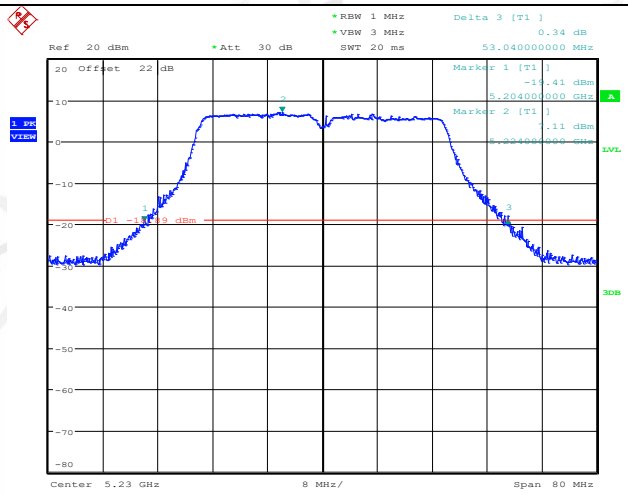

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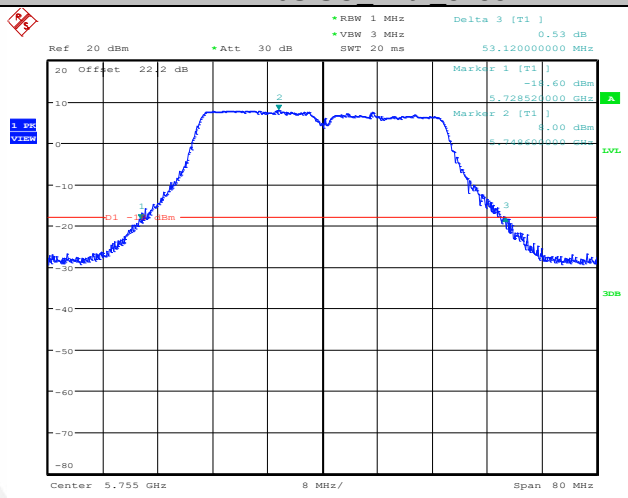

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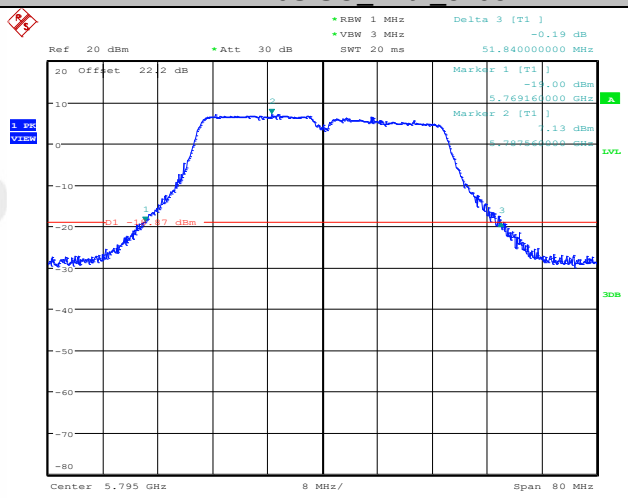

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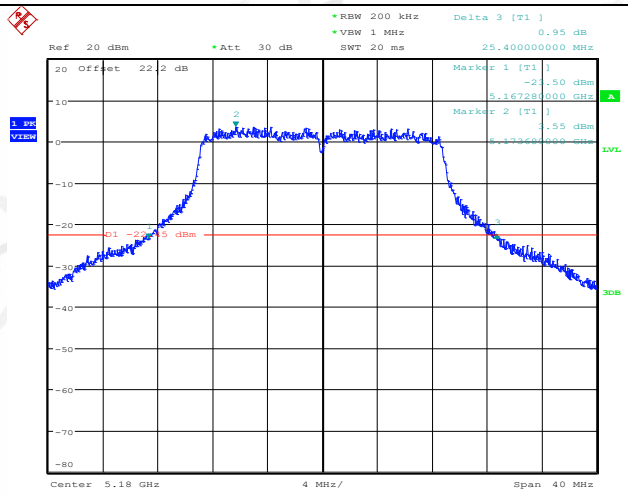

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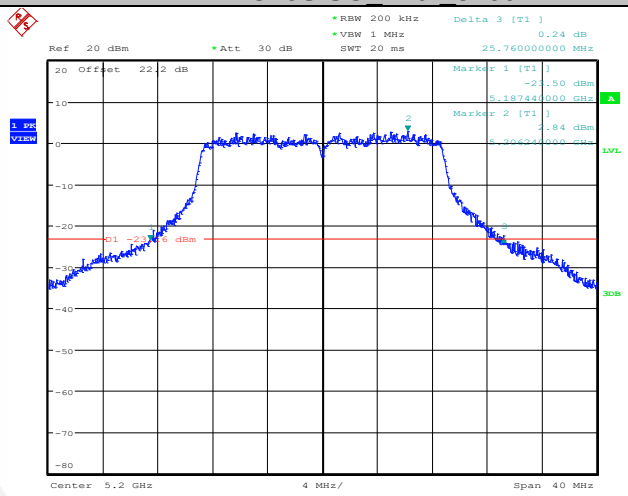

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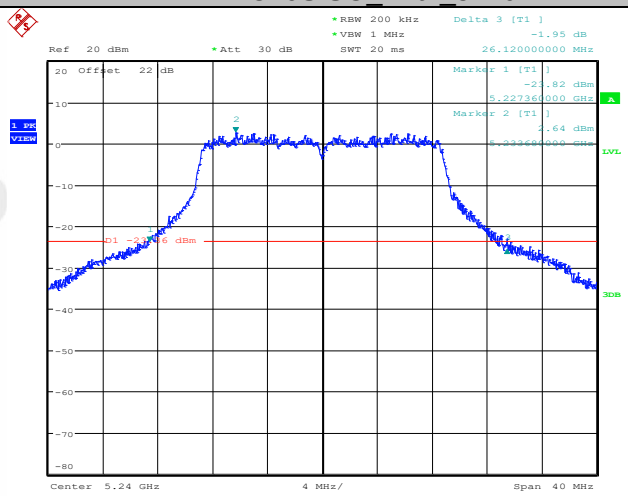

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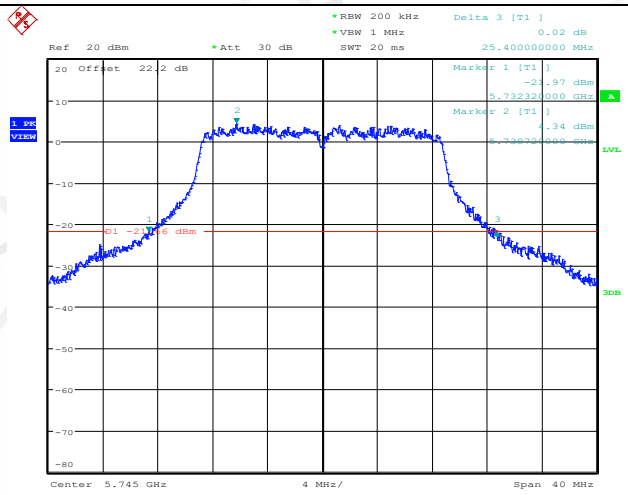

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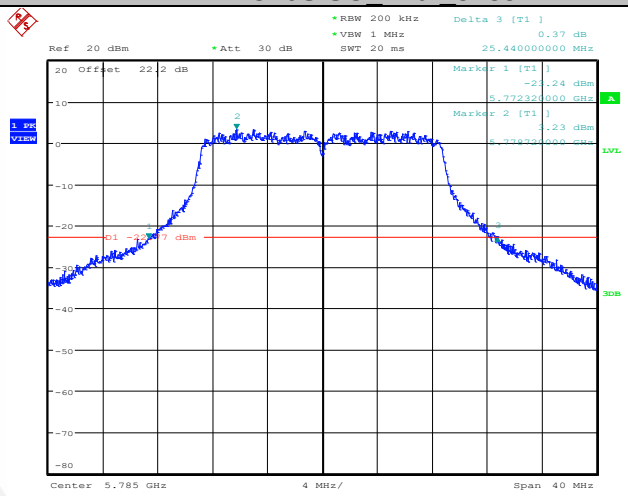

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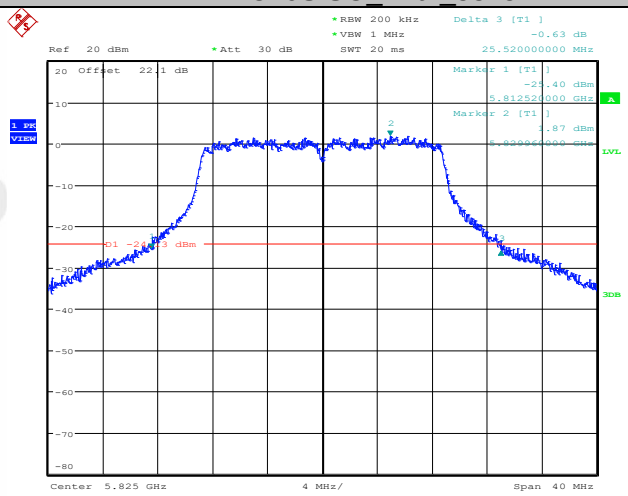

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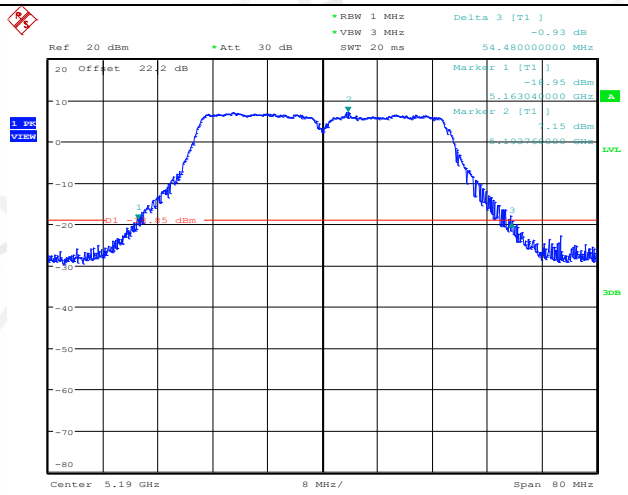

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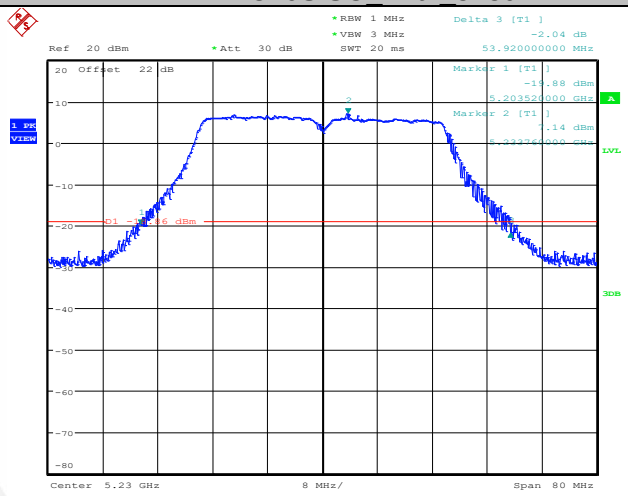

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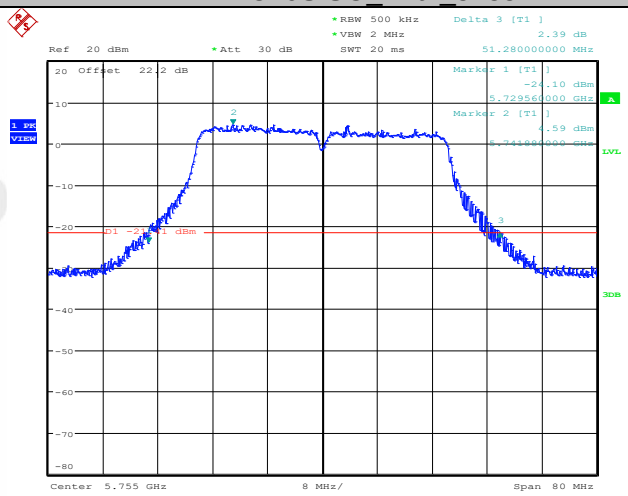

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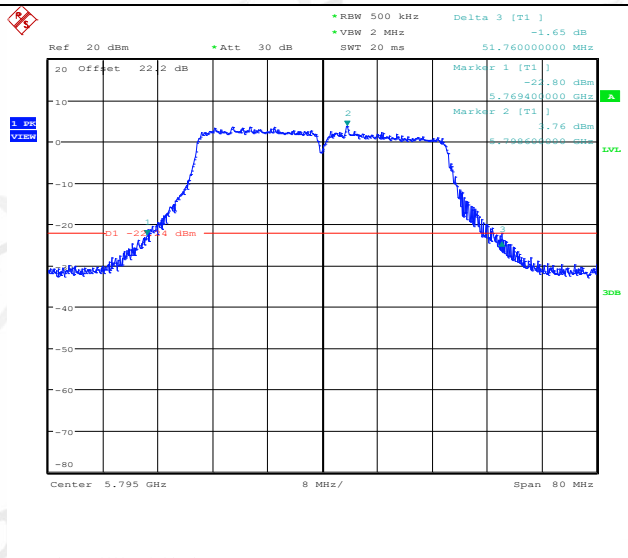
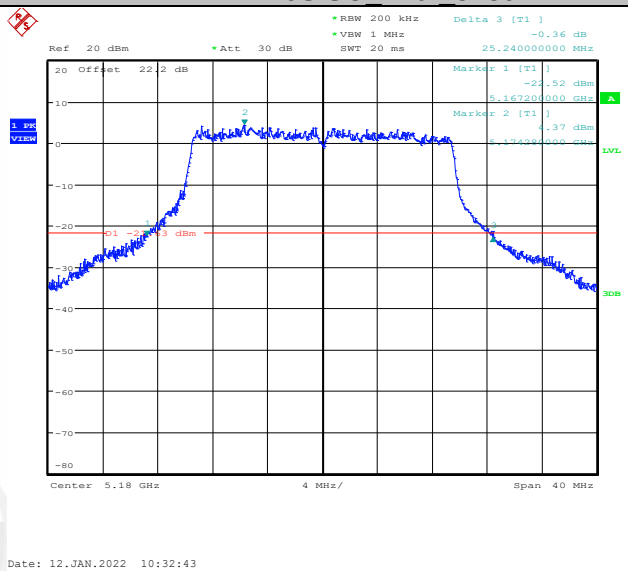


11AX20SISO_Ant1_5180



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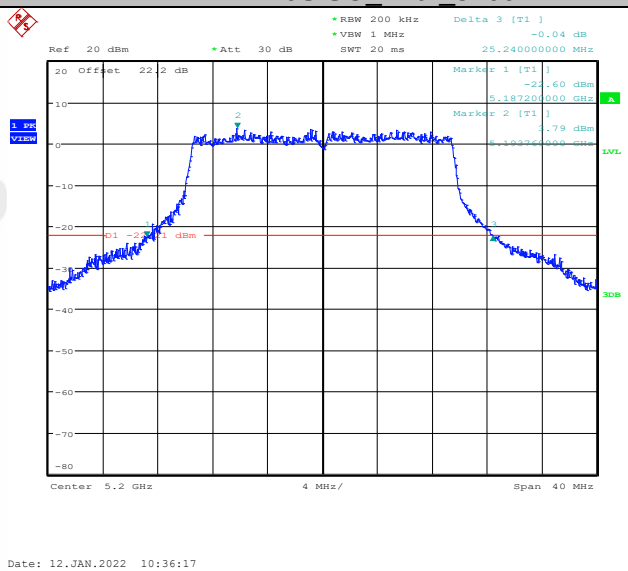
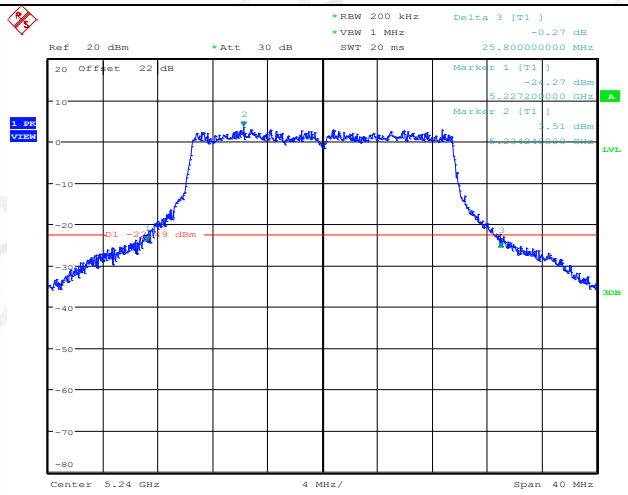


11AX20SISO_Ant1_5240



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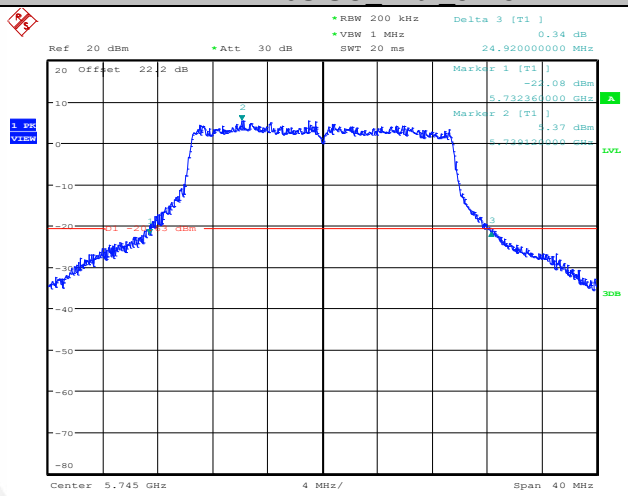

Date: 12.JAN.2022 10:42:45

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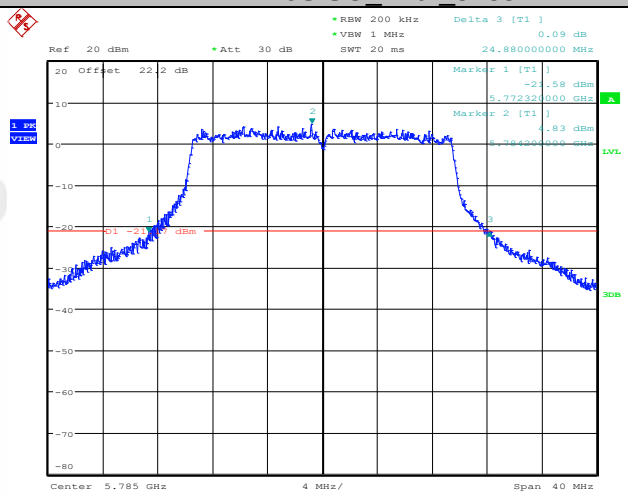

Date: 12.JAN.2022 10:49:16

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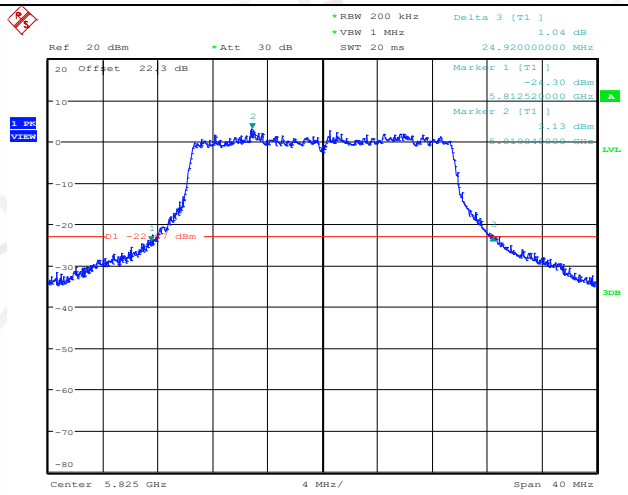
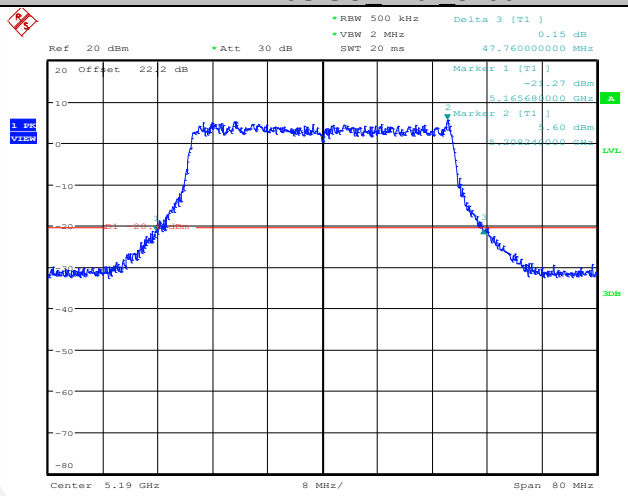


Date: 12.JAN.2022 21:33:14

11AX40SISO_Ant1_5190



Date: 12.JAN.2022 10:58:26

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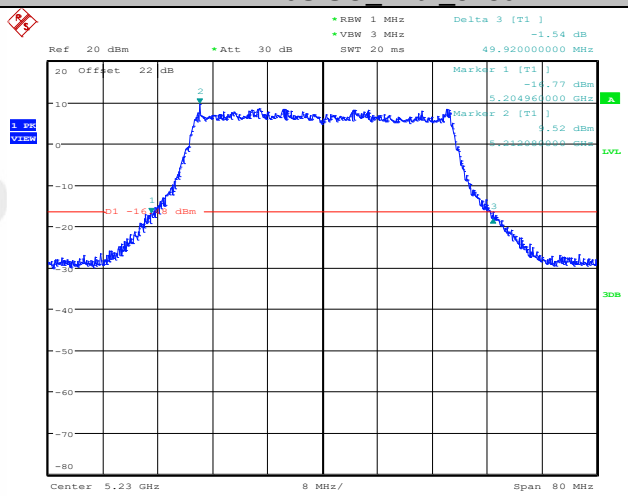

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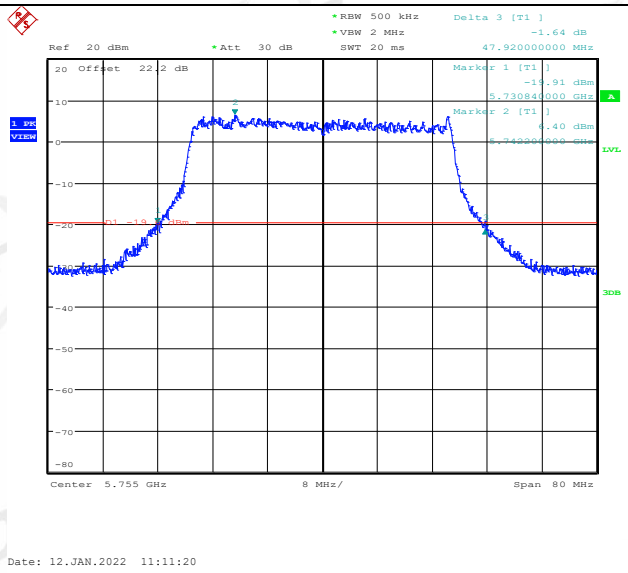
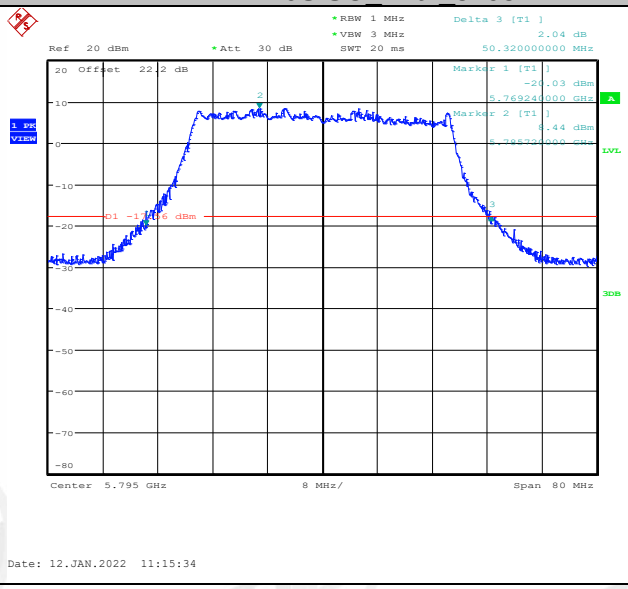
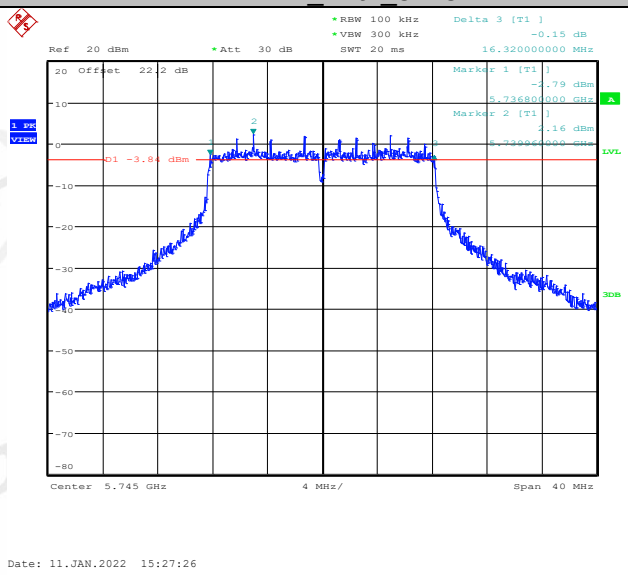


11AX40SISO_Ant1_5795

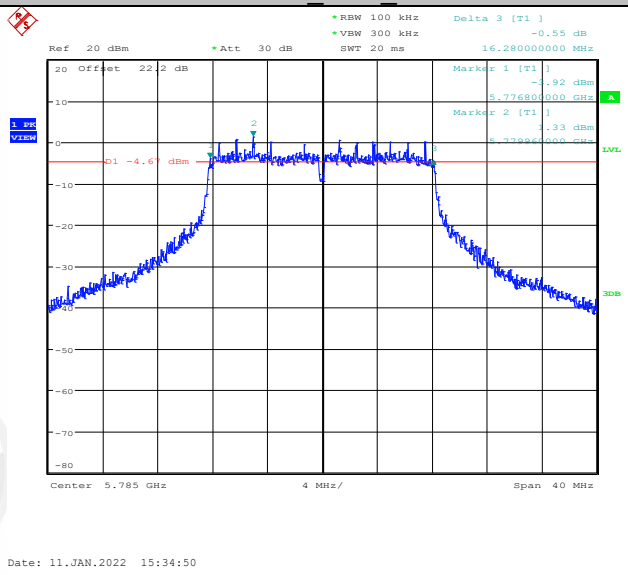


6db EBW:

11A_Ant1_5745



11A_Ant1_5785



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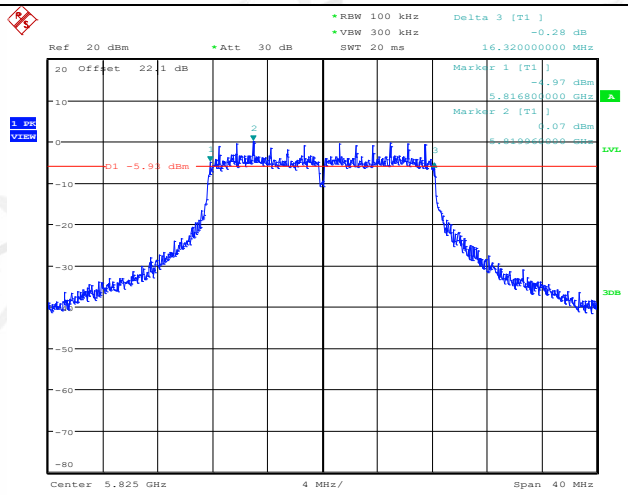

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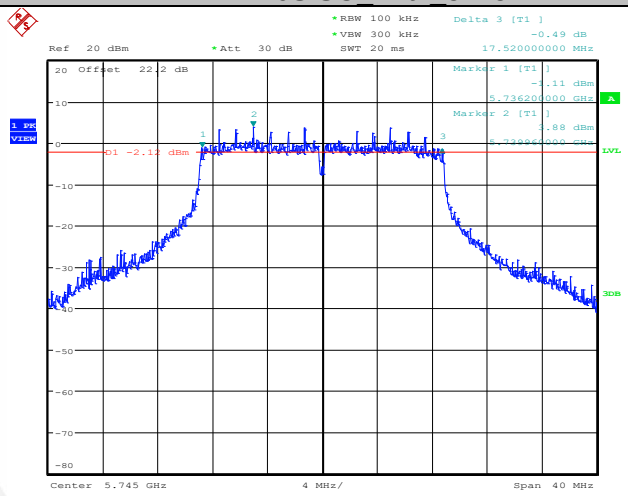

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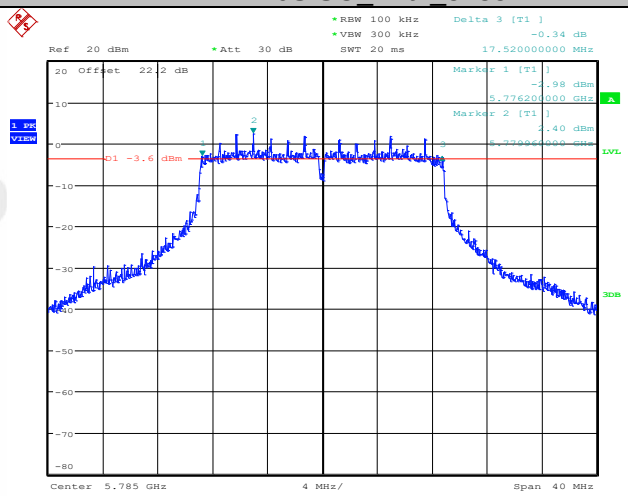

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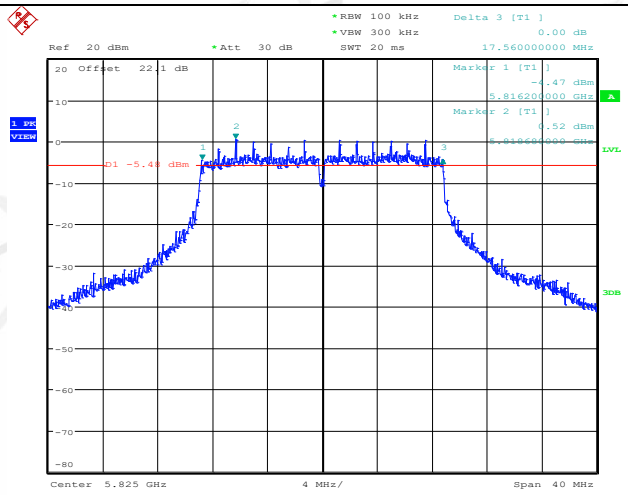

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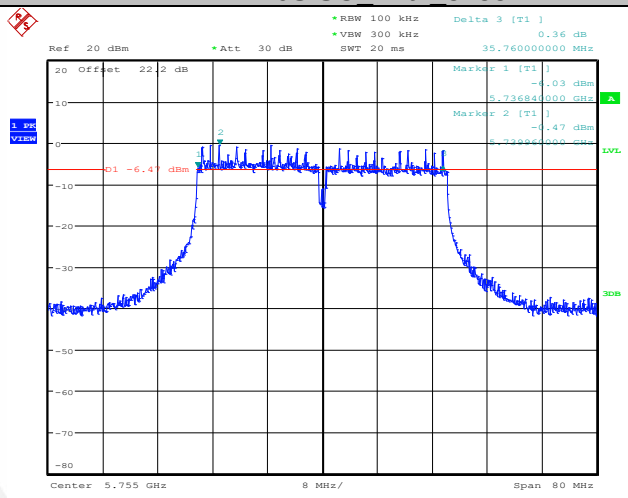

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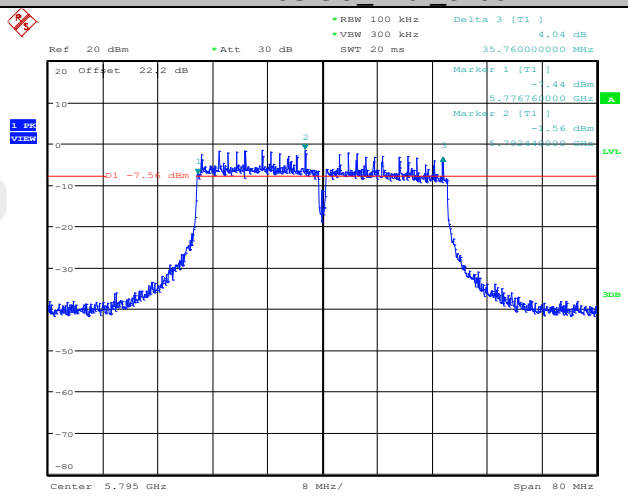

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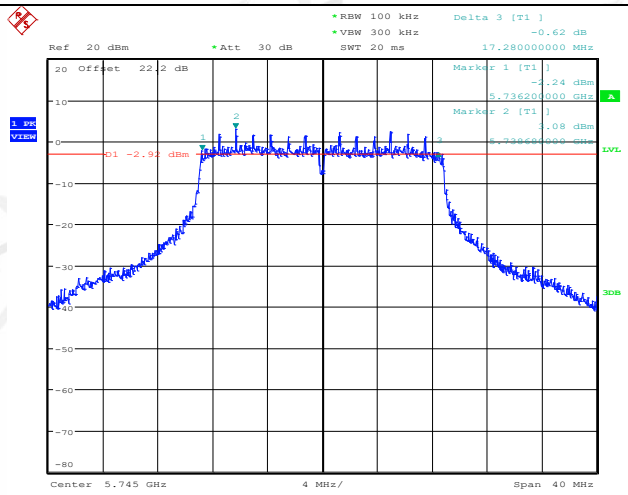

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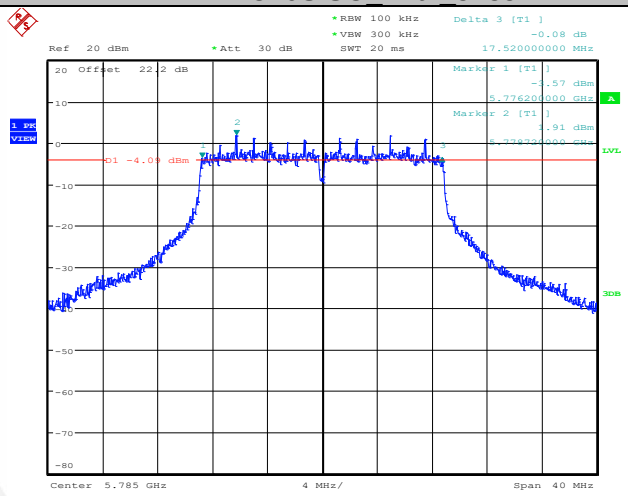

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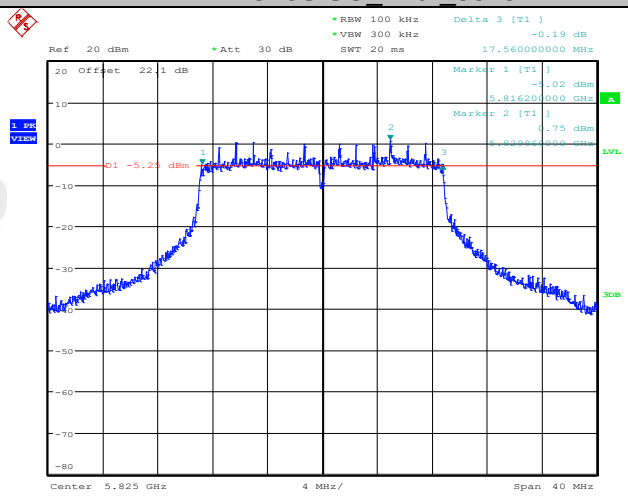

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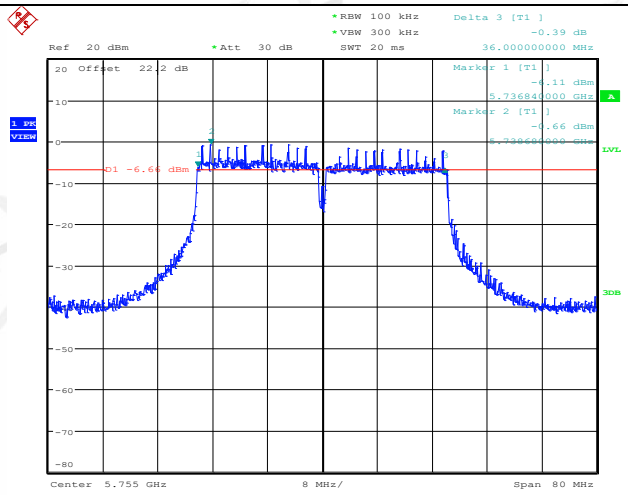

Date: 12.JAN.2022 10:23:07

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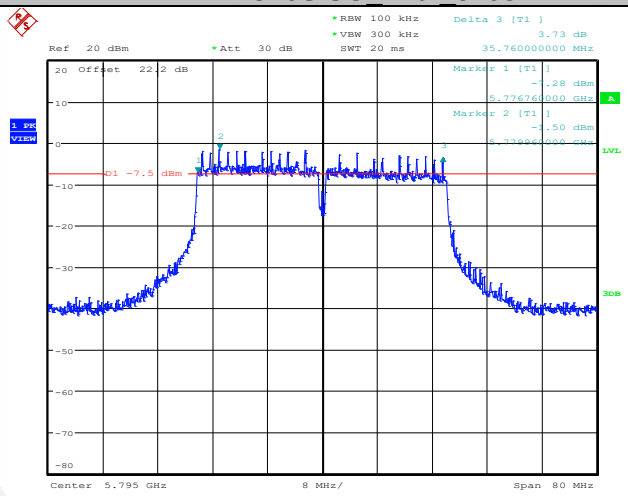

Date: 12.JAN.2022 10:27:03

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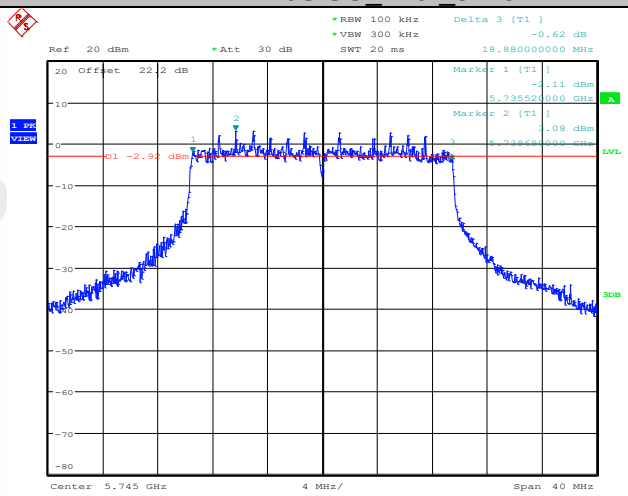

Date: 12.JAN.2022 10:42:58

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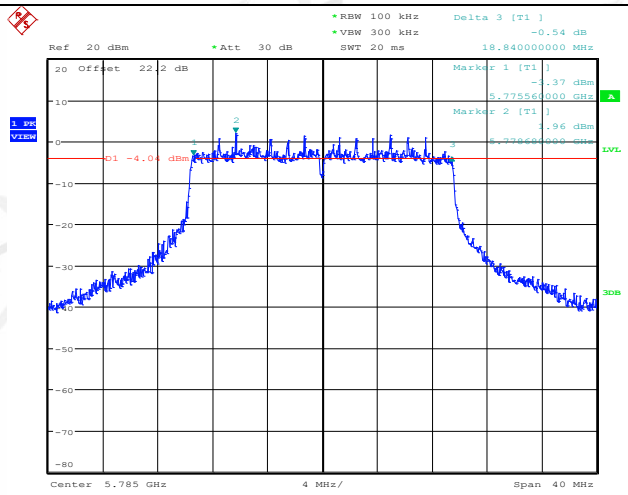

Date: 12.JAN.2022 10:49:29

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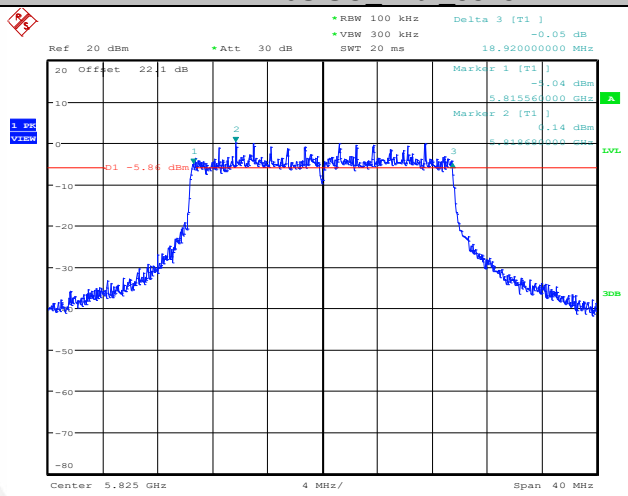

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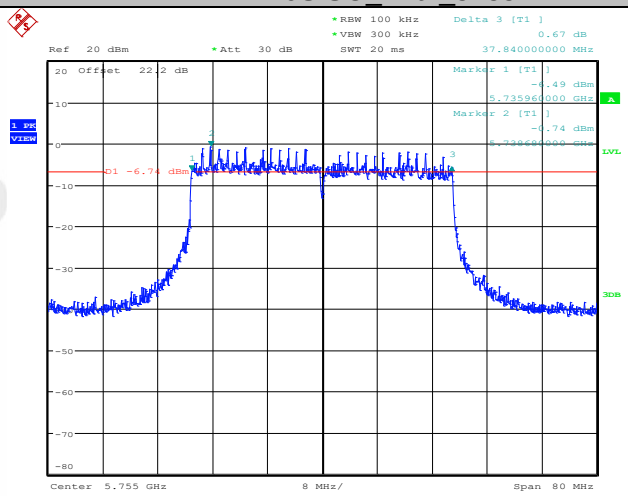
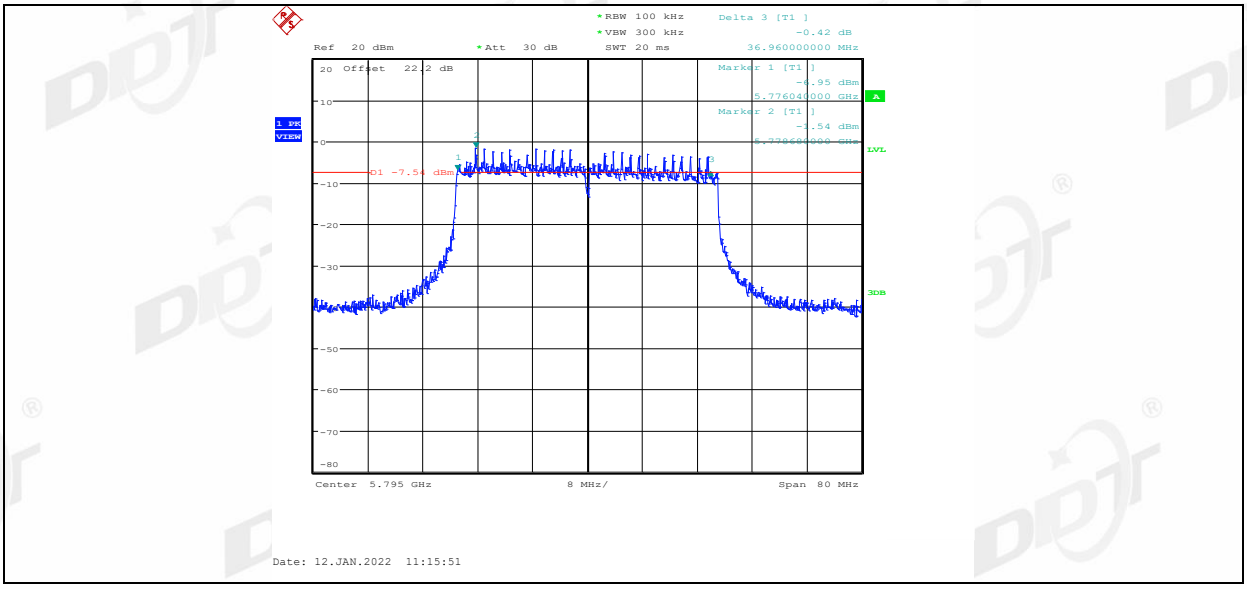


Date: 12.JAN.2022 11:11:37

11AX40SISO_Ant1_5795


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
Delta 3 [T1]
-0.42 dB
36.960000000 MHz
Ref 20 dBm
Att 30 dB
Offset 22.2 dB
Marker 1 [T1]
-4.95 dBm
5.776040000 GHz
Marker 2 [T1]
-7.54 dBm
5.779680000 GHz
D1 -7.54 dBm
Center 5.795 GHz
8 MHz/
Span 80 MHz
Date: 12.JAN.2022 11:15:51

5. Maximum Output Power

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	For FCC client devices: 250 mW (24 dBm)	5150-5250
	For RSS: e.i.r.p. power: not exceed 200 mW (23 dBm) or 10 + 10 $\log_{10}$ B, whichever is less	
	1 Watt (30 dBm)	5725-5850
Note: 1. For FCC: B=26 bandwidth; For ISED: B=99% bandwidth. 2. For ISED e.i.r.p. power only for 5725-5850 Band		

5.3. Test Procedure

Connect each EUT's antenna output to power sensor by RF cable and attenuator

Measure the output power by power sensor.

5.4. Test Result

Test Mode	Antenna	Channel	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	12.97	<=24	Pass
		5200	12.98	<=24	Pass
		5240	12.76	<=24	Pass
		5745	13.49	<=30	Pass
		5785	12.38	<=30	Pass
		5825	11.12	<=30	Pass
11N20SISO	Ant1	5180	12.65	<=24	Pass
		5200	12.52	<=24	Pass
		5240	12.97	<=24	Pass
		5745	**14.22**	<=30	Pass
		5785	12.79	<=30	Pass
		5825	11.74	<=30	Pass
11N40SISO	Ant1	5190	12.81	<=24	Pass
		5230	12.85	<=24	Pass
		5755	13.39	<=30	Pass
		5795	12.30	<=30	Pass
11AC20SISO	Ant1	5180	12.99	<=24	Pass
		5200	12.65	<=24	Pass
		5240	12.85	<=24	Pass
		5745	13.48	<=30	Pass
		5785	12.46	<=30	Pass
		5825	11.54	<=30	Pass
11AC40SISO	Ant1	5190	12.69	<=24	Pass
		5230	12.73	<=24	Pass
		5755	12.64	<=30	Pass
		5795	12.13	<=30	Pass
11AX20SISO	Ant1	5180	12.72	<=24	Pass
		5200	12.57	<=24	Pass
		5240	12.82	<=24	Pass
		5745	13.48	<=30	Pass
		5785	12.38	<=30	Pass
		5825	11.43	<=30	Pass
11AX40SISO	Ant1	5190	12.53	<=24	Pass
		5230	13.68	<=24	Pass
		5755	13.19	<=30	Pass
		5795	12.15	<=30	Pass

Test Mode	Antenna	Channel	EIRP [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	15.82	<=24	Pass
		5200	15.83	<=24	Pass
		5240	15.61	<=24	Pass
		5745	16.34	<=30	Pass
		5785	15.23	<=30	Pass
		5825	13.97	<=30	Pass
11N20SISO	Ant1	5180	15.50	<=24	Pass
		5200	15.37	<=24	Pass
		5240	15.82	<=24	Pass

		5745	17.07	<=30	Pass
		5785	15.64	<=30	Pass
		5825	14.59	<=30	Pass
11N40SISO	Ant1	5190	15.66	<=24	Pass
		5230	15.70	<=24	Pass
		5755	16.24	<=30	Pass
		5795	15.15	<=30	Pass
11AC20SISO	Ant1	5180	15.84	<=24	Pass
		5200	15.50	<=24	Pass
		5240	15.70	<=24	Pass
		5745	16.33	<=30	Pass
		5785	15.31	<=30	Pass
		5825	14.39	<=30	Pass
11AC40SISO	Ant1	5190	15.54	<=24	Pass
		5230	15.58	<=24	Pass
		5755	15.49	<=30	Pass
		5795	14.98	<=30	Pass
11AX20SISO	Ant1	5180	15.57	<=24	Pass
		5200	15.42	<=24	Pass
		5240	15.67	<=24	Pass
		5745	16.33	<=30	Pass
		5785	15.23	<=30	Pass
		5825	14.28	<=30	Pass
11AX40SISO	Ant1	5190	15.38	<=24	Pass
		5230	16.53	<=24	Pass
		5755	16.04	<=30	Pass
		5795	15.00	<=30	Pass

6. Power Spectral Density

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	For RSS eirp:10 dBm/MHz	
	11 dBm/MHz	5250-5350
	11 dBm/MHz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	30 dBm/500 kHz	5725-5850

6.3. Test Procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.
Connect the UUT to the spectrum analyser and use the following settings:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

6.4. Test Result

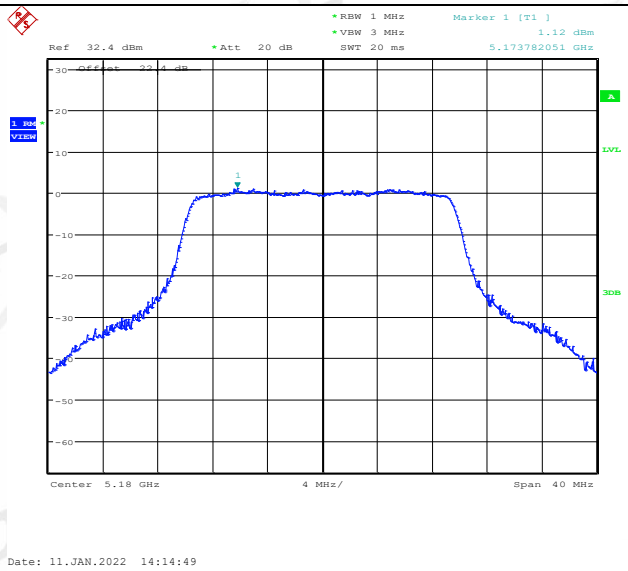
Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	1.12	<=11	Pass
		5200	2.20	<=11	Pass
		5240	1.81	<=11	Pass
11N20SISO	Ant1	5180	1.91	<=11	Pass
		5200	1.95	<=11	Pass
		5240	2.06	<=11	Pass
11N40SISO	Ant1	5190	-0.69	<=11	Pass
		5230	-0.64	<=11	Pass
11AC20SISO	Ant1	5180	1.91	<=11	Pass
		5200	2.13	<=11	Pass
		5240	1.76	<=11	Pass
11AC40SISO	Ant1	5190	-0.78	<=11	Pass
		5230	-1.04	<=11	Pass
11AX20SISO	Ant1	5180	2.33	<=11	Pass
		5200	1.74	<=11	Pass
		5240	1.53	<=11	Pass
11AX40SISO	Ant1	5190	-0.87	<=11	Pass
		5230	-0.19	<=11	Pass

(5725-5850)

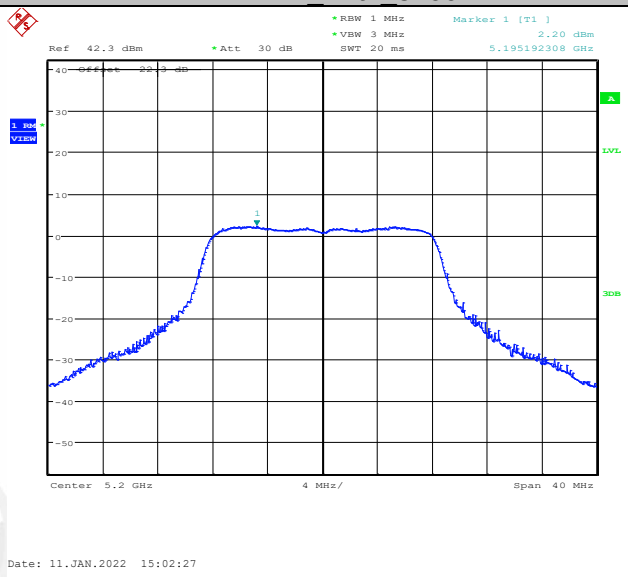
Test Mode	Antenna	Channel	PSD [dBm/500kHz]	Limit [dBm/500kHz]	Verdict
11A	Ant1	5745	0.39	<=30	Pass
		5785	-0.56	<=30	Pass
		5825	-1.61	<=30	Pass
11N20SISO	Ant1	5745	2.10	<=30	Pass
		5785	1.32	<=30	Pass
		5825	-0.79	<=30	Pass
11N40SISO	Ant1	5755	-1.69	<=30	Pass
		5795	-2.30	<=30	Pass
11AC20SISO	Ant1	5745	1.55	<=30	Pass
		5785	0.27	<=30	Pass
		5825	-0.86	<=30	Pass
11AC40SISO	Ant1	5755	-1.77	<=30	Pass
		5795	-2.61	<=30	Pass
11AX20SISO	Ant1	5745	2.18	<=30	Pass
		5785	0.35	<=30	Pass
		5825	-0.92	<=30	Pass
11AX40SISO	Ant1	5755	-2.19	<=30	Pass
		5795	-2.77	<=30	Pass

6.5. Original test data

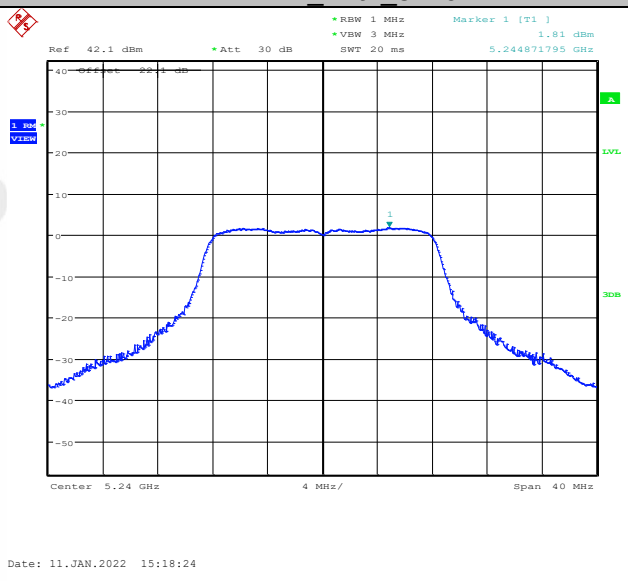
11A_Ant1_5180



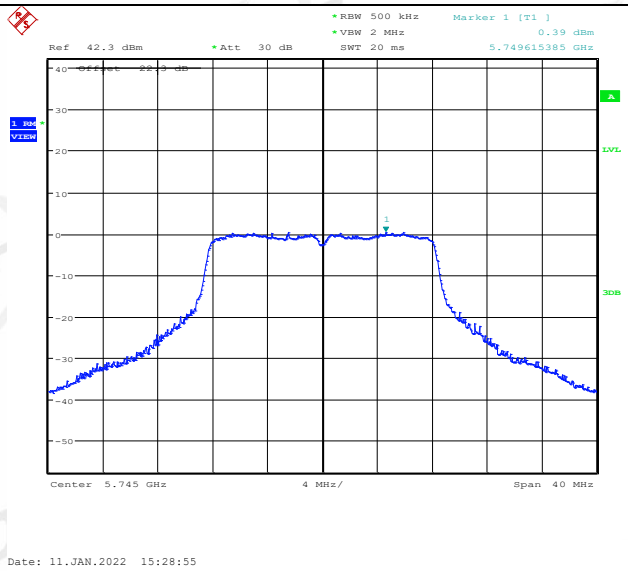
11A_Ant1_5200



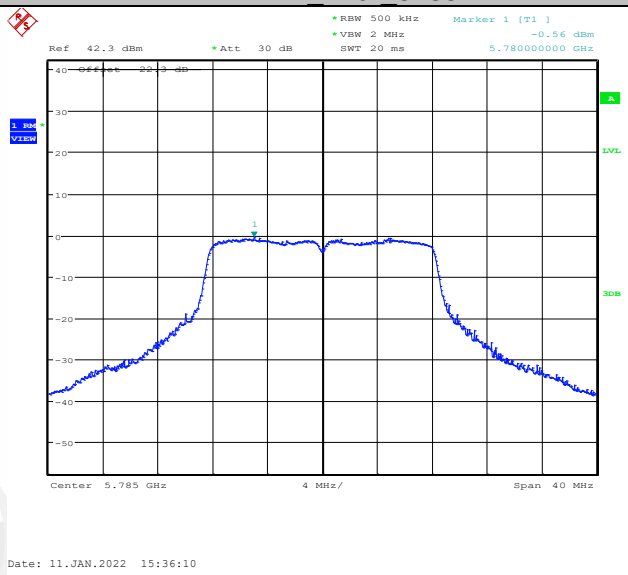
11A_Ant1_5240



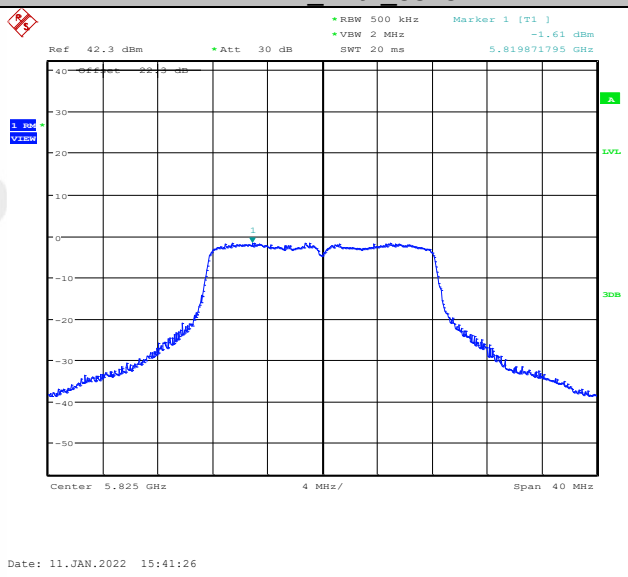
11A_Ant1_5745



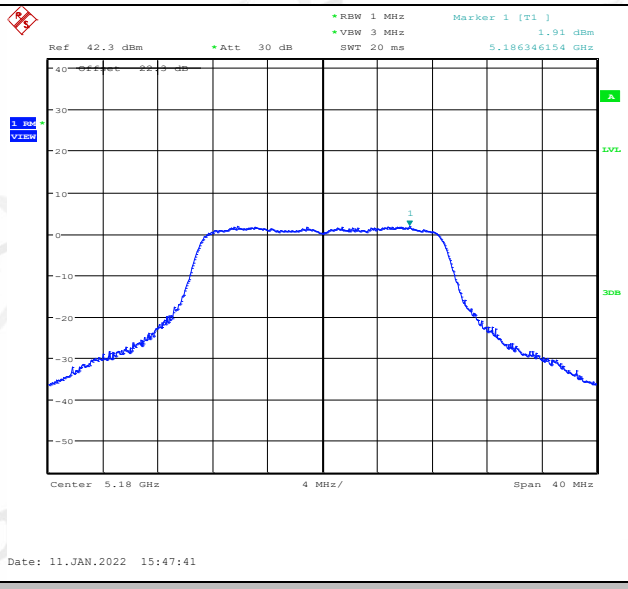
11A_Ant1_5785



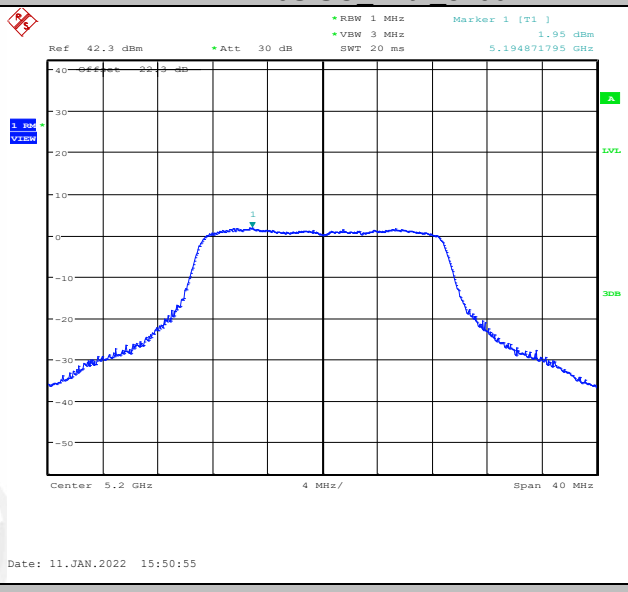
11A_Ant1_5825



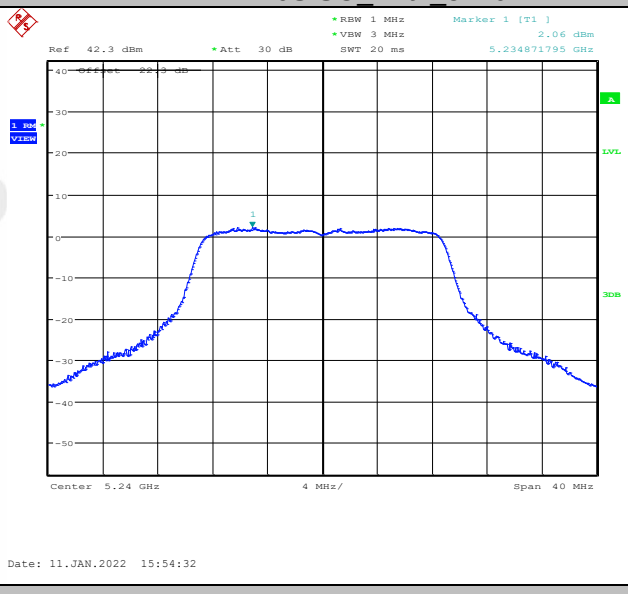
11N20SISO_Ant1_5180



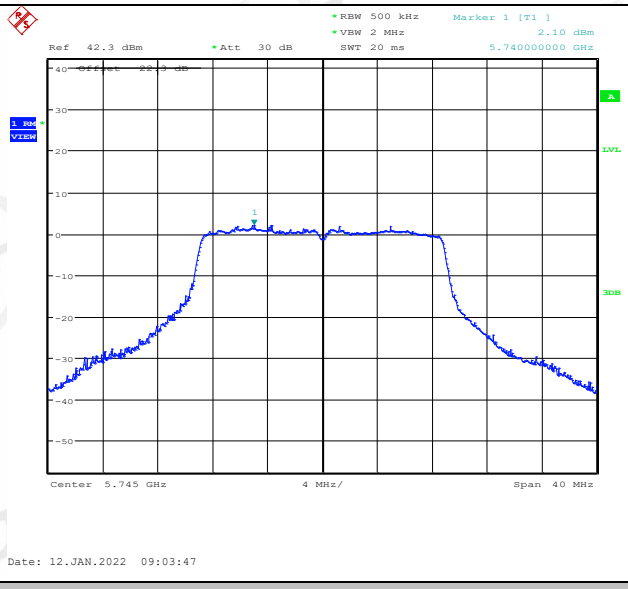
11N20SISO_Ant1_5200



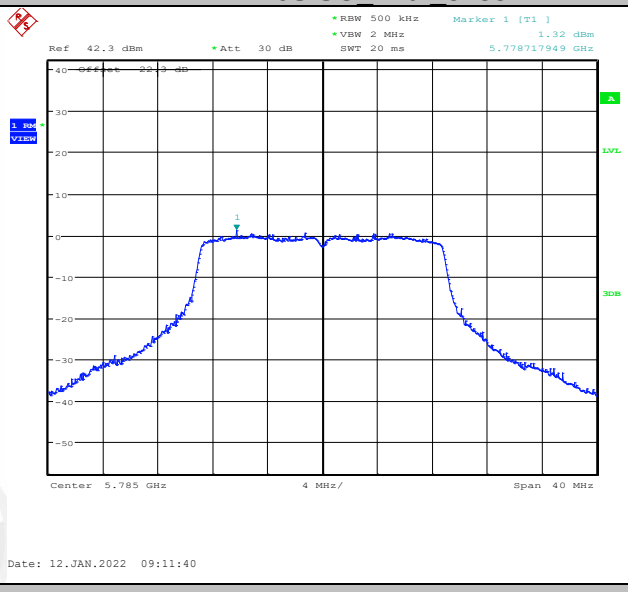
11N20SISO_Ant1_5240



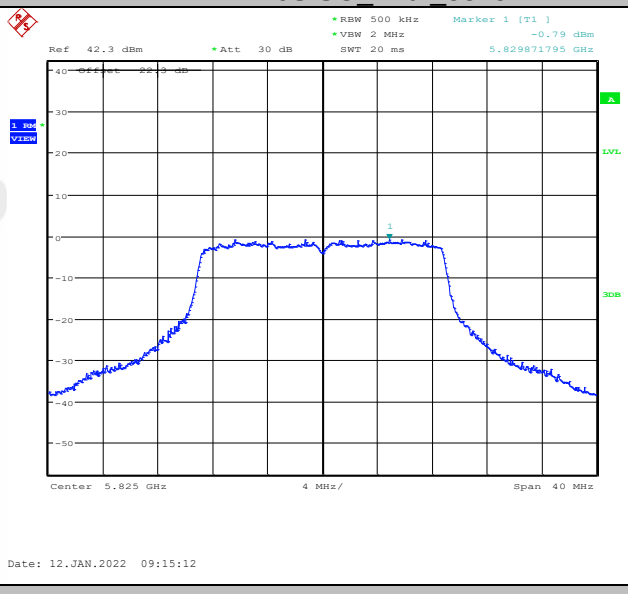
11N20SISO_Ant1_5745



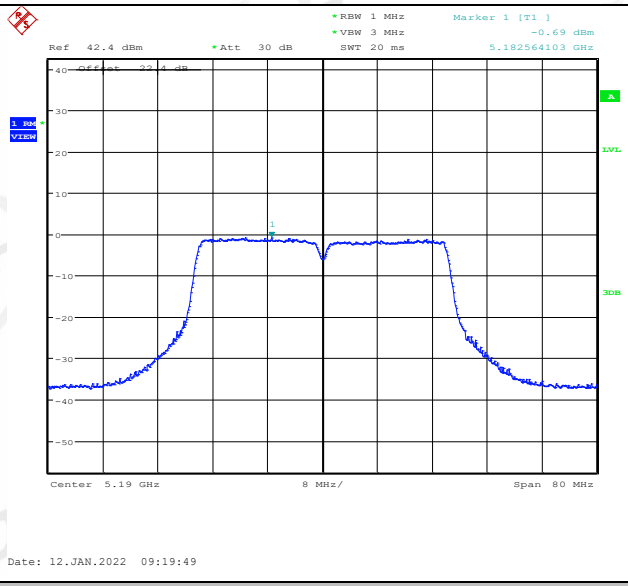
11N20SISO_Ant1_5785



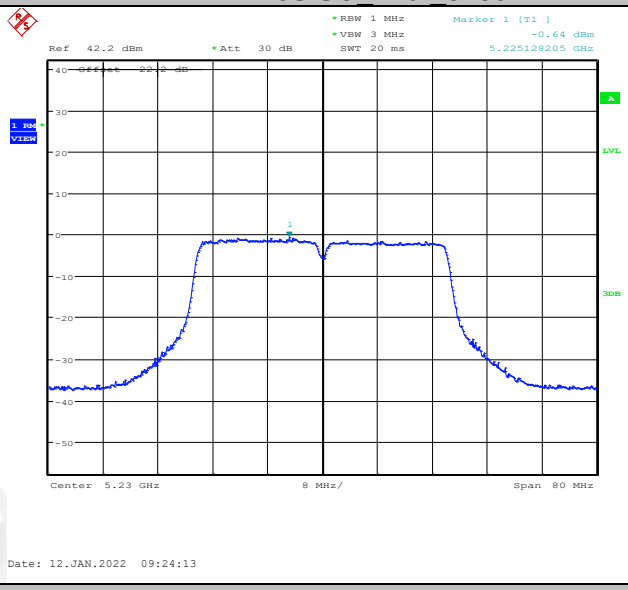
11N20SISO_Ant1_5825



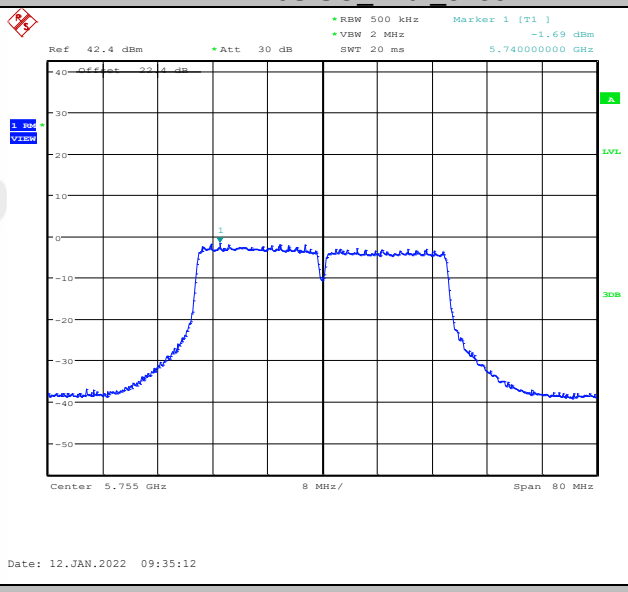
11N40SISO_Ant1_5190



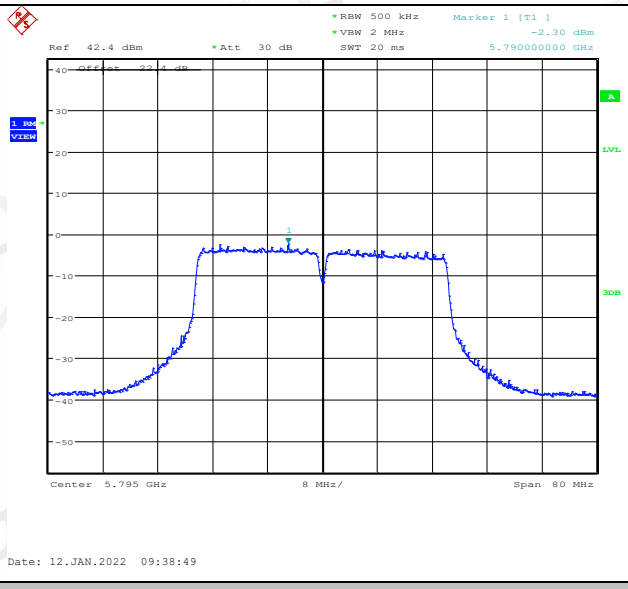
11N40SISO_Ant1_5230



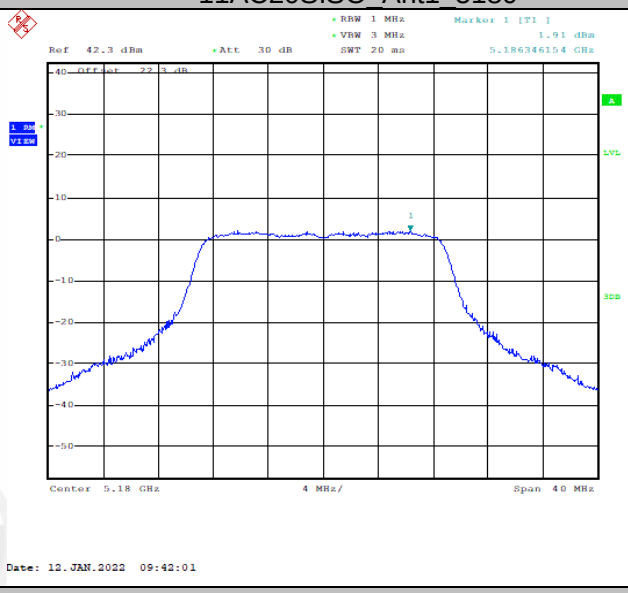
11N40SISO_Ant1_5755



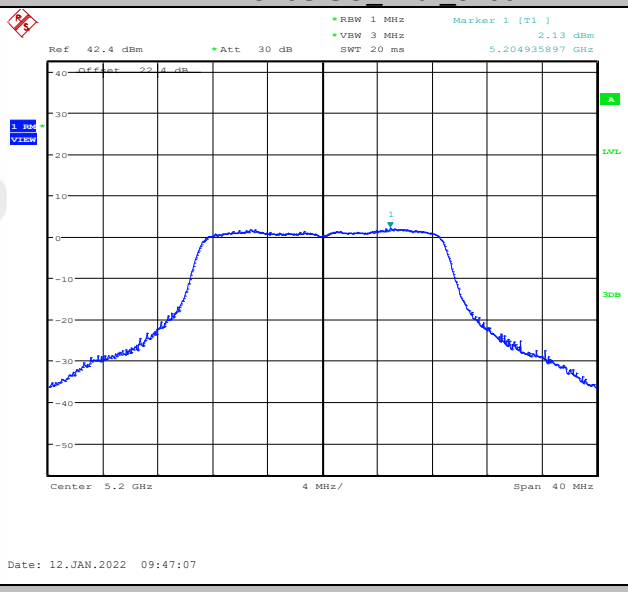
11N40SISO_Ant1_5795



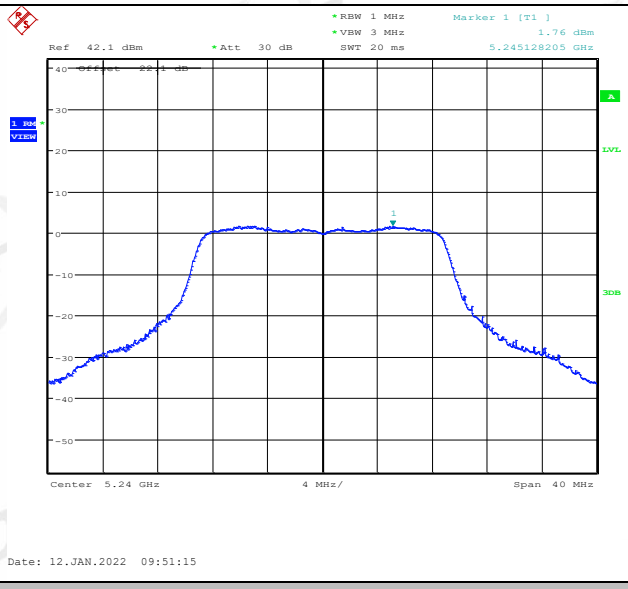
11AC20SISO_Ant1_5180



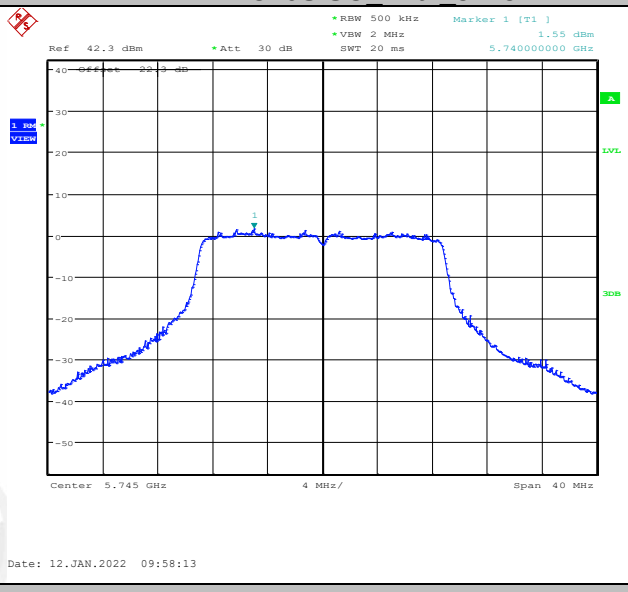
11AC20SISO_Ant1_5200



11AC20SISO_Ant1_5240



11AC20SISO_Ant1_5745



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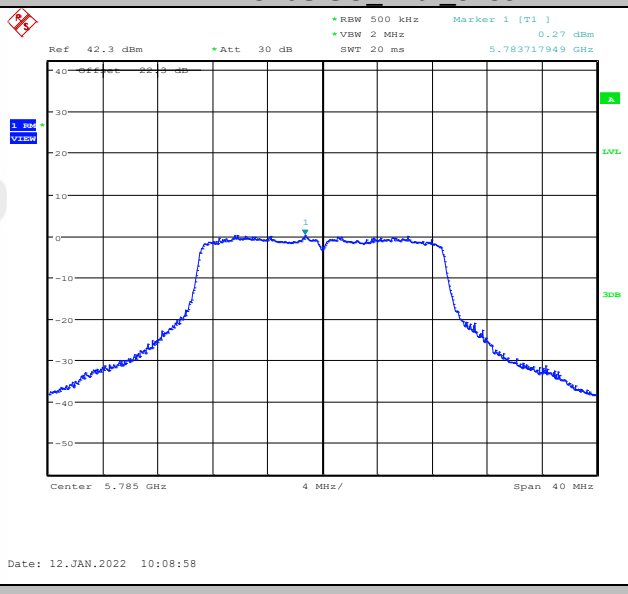
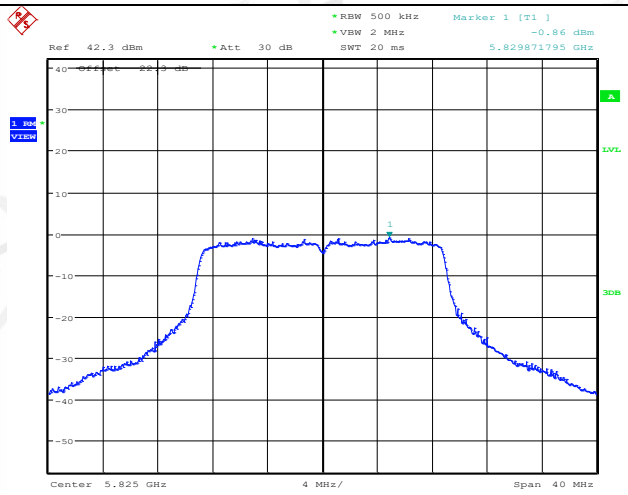
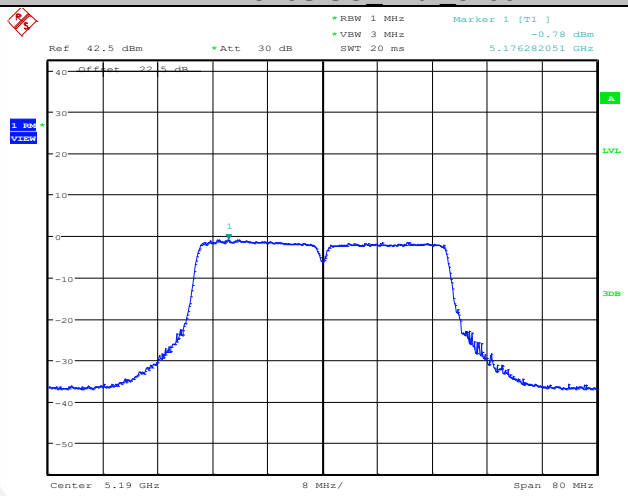


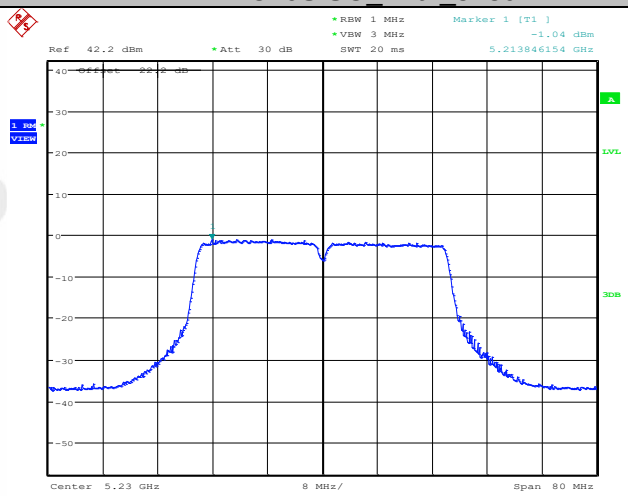
11AC20SISO_Ant1_5825



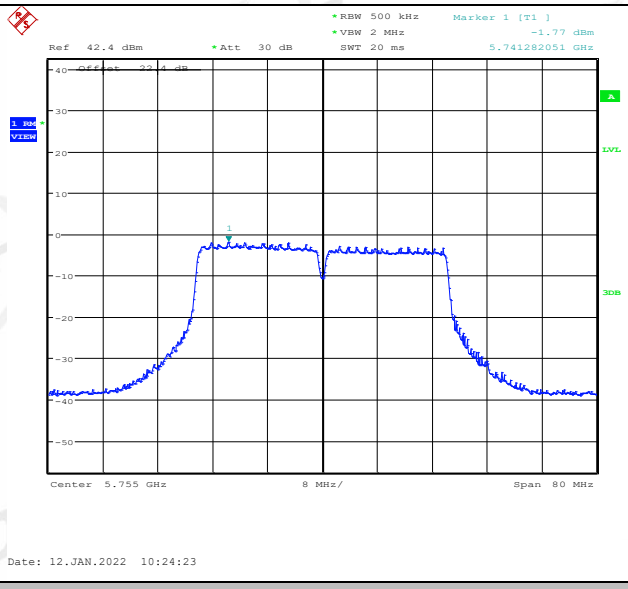
11AC40SISO_Ant1_5190



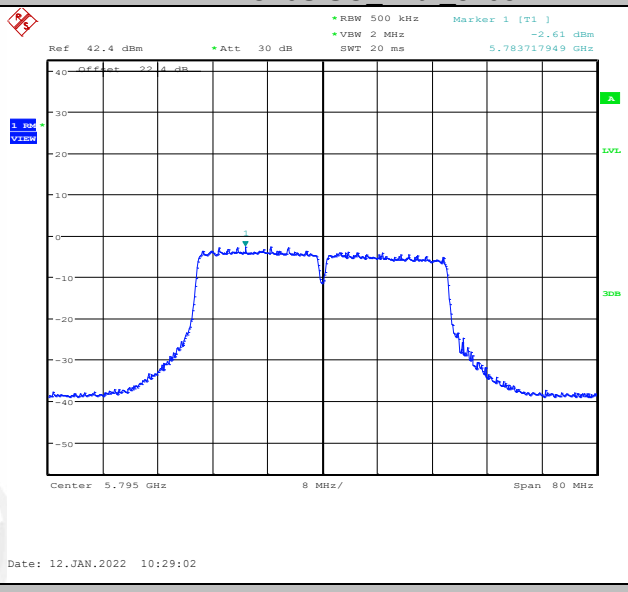
11AC40SISO_Ant1_5230



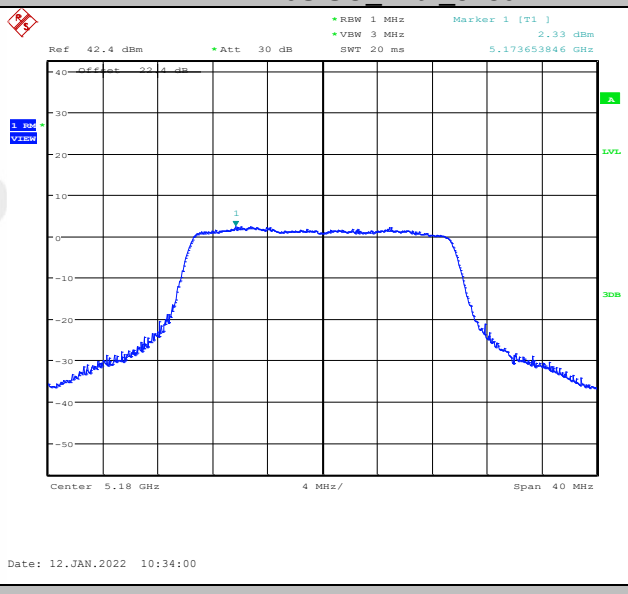
11AC40SISO_Ant1_5755



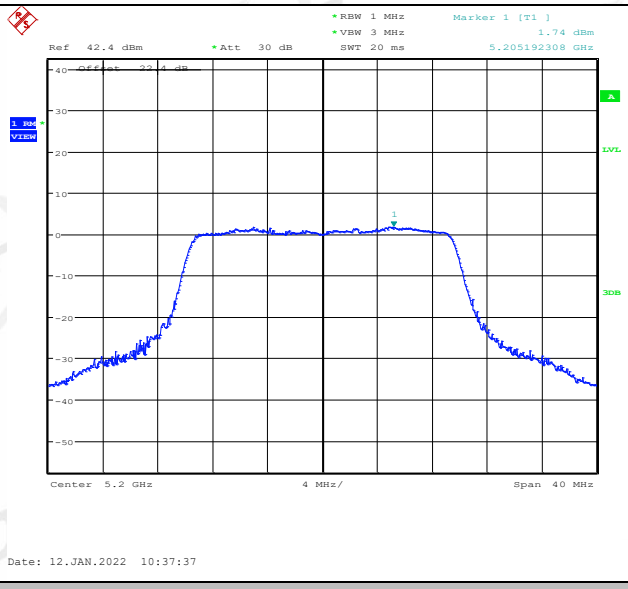
11AC40SISO_Ant1_5795



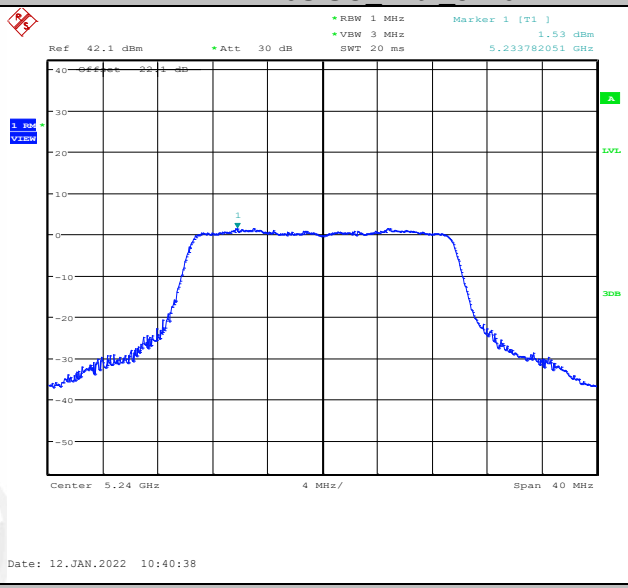
11AX20SISO_Ant1_5180



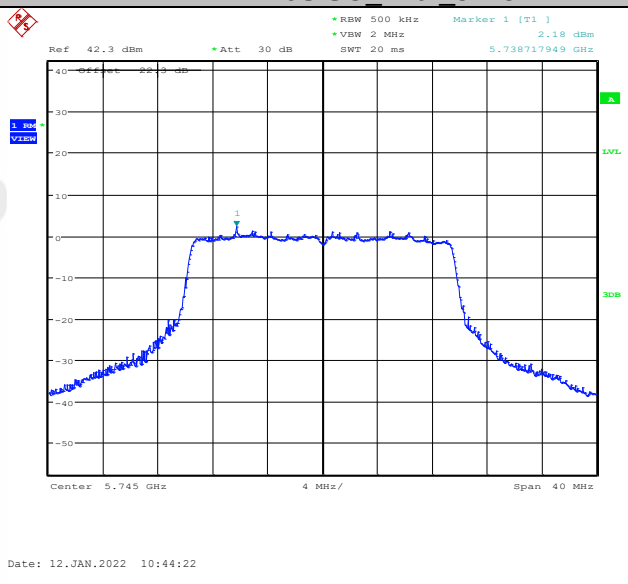
11AX20SISO_Ant1_5200



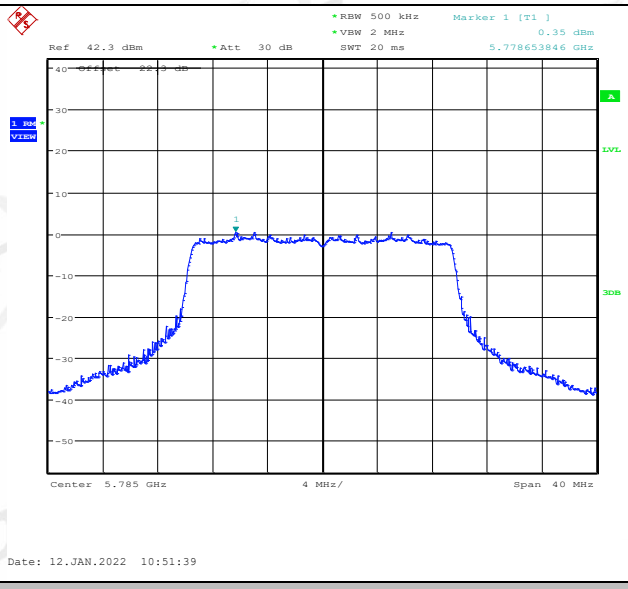
11AX20SISO_Ant1_5240



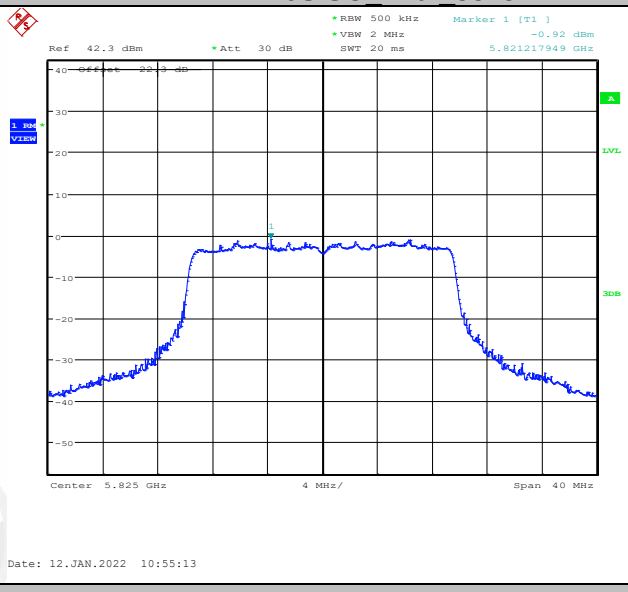
11AX20SISO_Ant1_5745



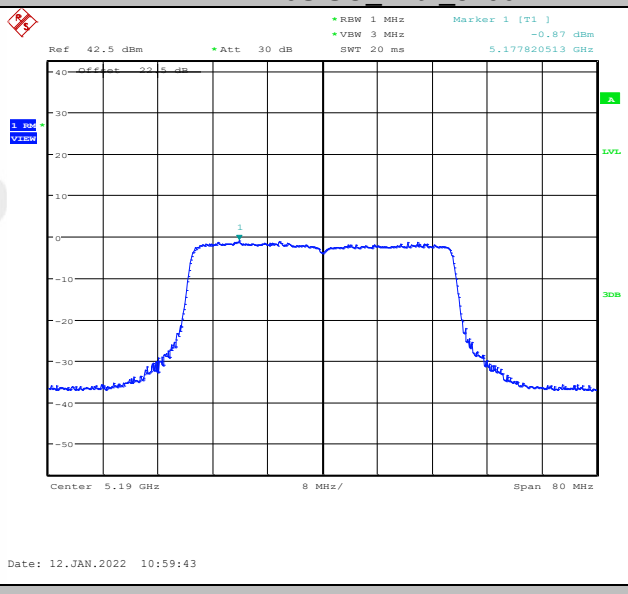
11AX20SISO_Ant1_5785



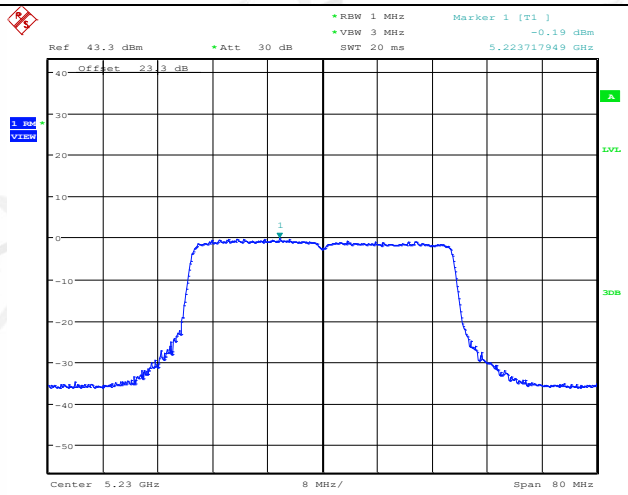
11AX20SISO_Ant1_5825



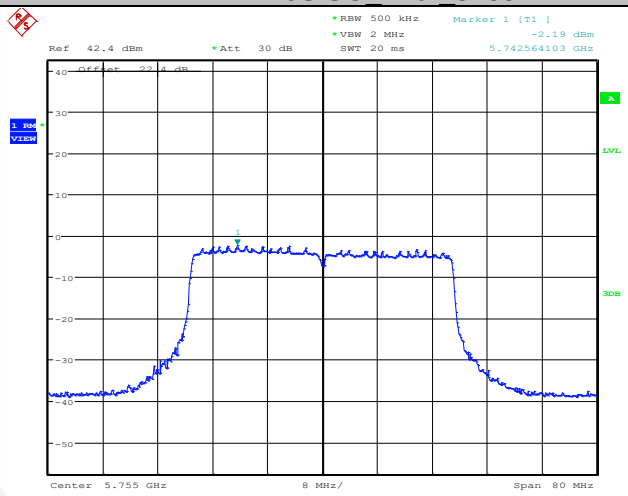
11AX40SISO_Ant1_5190



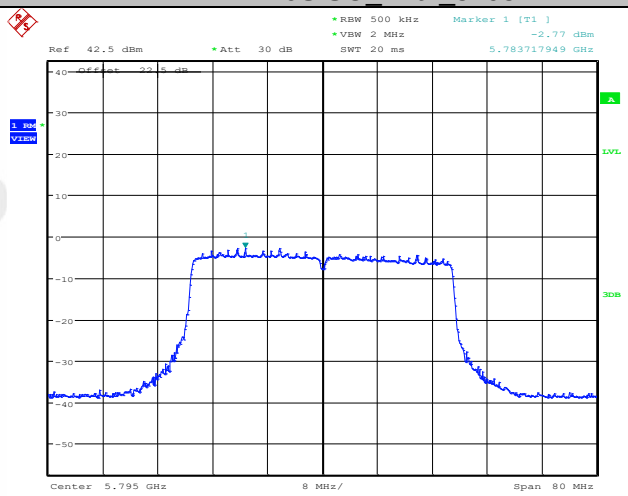
11AX40SISO_Ant1_5230



11AX40SISO_Ant1_5755



11AX40SISO_Ant1_5795



7. Frequency Stability Measurement

7.1. Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

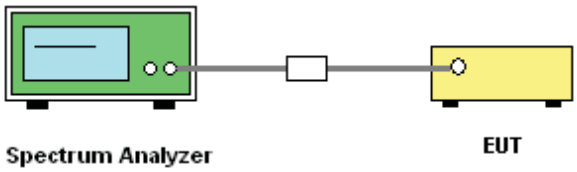
7.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

7.3. Test Procedures

(1) To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
(2) The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
(3) The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

7.4. Test Setup



7.5. Test Result

Voltage								
Test Mode	Antenna	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-20000	-3.861004	20	Pass
			LV	NT	-40000	-7.722008	20	Pass
			HV	NT	-40000	-7.722008	20	Pass
		5200	NV	NT	-40000	-7.692308	20	Pass
			LV	NT	-40000	-7.692308	20	Pass
			HV	NT	-40000	-7.692308	20	Pass
		5240	NV	NT	-40000	-7.633588	20	Pass
			LV	NT	-40000	-7.633588	20	Pass
			HV	NT	-40000	-7.633588	20	Pass
		5745	NV	NT	-40000	-6.962576	20	Pass
			LV	NT	-40000	-6.962576	20	Pass
			HV	NT	-40000	-6.962576	20	Pass
		5785	NV	NT	-40000	-6.914434	20	Pass
			LV	NT	-60000	-10.371651	20	Pass

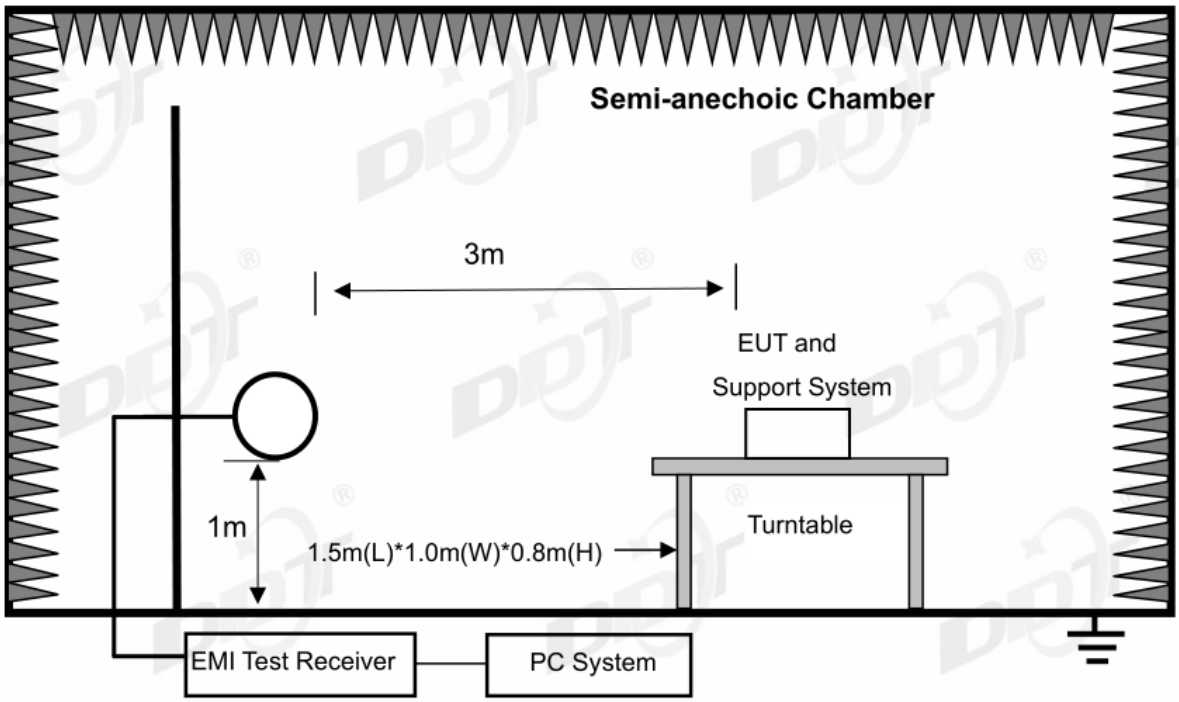
			HV	NT	-40000	-6.914434	20	Pass
		5825	NV	NT	-40000	-6.866953	20	Pass
			LV	NT	-60000	-10.300429	20	Pass
			HV	NT	-20000	-3.433476	20	Pass
11N20SISO	Ant1	5180	NV	NT	-40000	-7.722008	20	Pass
			LV	NT	-20000	-3.861004	20	Pass
			HV	NT	-40000	-7.722008	20	Pass
		5200	NV	NT	-40000	-7.692308	20	Pass
			LV	NT	-40000	-7.692308	20	Pass
			HV	NT	-40000	-7.692308	20	Pass
		5240	NV	NT	-40000	-7.633588	20	Pass
			LV	NT	-40000	-7.633588	20	Pass
			HV	NT	-60000	-11.450382	20	Pass
		5745	NV	NT	-40000	-6.962576	20	Pass
			LV	NT	-40000	-6.962576	20	Pass
			HV	NT	-60000	-10.443864	20	Pass
		5785	NV	NT	-60000	-10.371651	20	Pass
			LV	NT	-60000	-10.371651	20	Pass
			HV	NT	-40000	-6.914434	20	Pass
		5825	NV	NT	-60000	-10.300429	20	Pass
			LV	NT	-60000	-10.300429	20	Pass
			HV	NT	-40000	-6.866953	20	Pass
11N40SISO	Ant1	5190	NV	NT	-80000	-15.414258	20	Pass
			LV	NT	-40000	-7.707129	20	Pass
			HV	NT	-40000	-7.707129	20	Pass
		5230	NV	NT	-40000	-7.648184	20	Pass
			LV	NT	-40000	-7.648184	20	Pass
			HV	NT	-40000	-7.648184	20	Pass
		5755	NV	NT	-40000	-6.950478	20	Pass
			LV	NT	-40000	-6.950478	20	Pass
			HV	NT	-40000	-6.950478	20	Pass
		5795	NV	NT	-40000	-6.902502	20	Pass
			LV	NT	-40000	-6.902502	20	Pass
			HV	NT	-40000	-6.902502	20	Pass
11AC20SISO	Ant1	5180	NV	NT	-60000	-11.583012	20	Pass
			LV	NT	-40000	-7.722008	20	Pass
			HV	NT	-40000	-7.722008	20	Pass
		5200	NV	NT	-40000	-7.692308	20	Pass
			LV	NT	-20000	-3.846154	20	Pass
			HV	NT	-60000	-11.538462	20	Pass
		5240	NV	NT	-40000	-7.633588	20	Pass
			LV	NT	-40000	-7.633588	20	Pass
			HV	NT	-40000	-7.633588	20	Pass
		5745	NV	NT	-40000	-6.962576	20	Pass
			LV	NT	-40000	-6.962576	20	Pass
			HV	NT	-40000	-6.962576	20	Pass
		5785	NV	NT	-60000	-10.371651	20	Pass
			LV	NT	-40000	-6.914434	20	Pass
			HV	NT	-40000	-6.914434	20	Pass
		5825	NV	NT	-60000	-10.300429	20	Pass
			LV	NT	-20000	-3.433476	20	Pass

			HV	NT	-40000	-6.866953	20	Pass
11AC40 SISO	Ant1	5190	NV	NT	-40000	-7.707129	20	Pass
			LV	NT	-80000	-15.414258	20	Pass
			HV	NT	-40000	-7.707129	20	Pass
		5230	NV	NT	-80000	-15.296367	20	Pass
			LV	NT	-40000	-7.648184	20	Pass
			HV	NT	-40000	-7.648184	20	Pass
		5755	NV	NT	-80000	-13.900956	20	Pass
			LV	NT	-40000	-6.950478	20	Pass
			HV	NT	-40000	-6.950478	20	Pass
		5795	NV	NT	-80000	-13.805004	20	Pass
			LV	NT	-80000	-13.805004	20	Pass
			HV	NT	-40000	-6.902502	20	Pass
11AC20 SISO	Ant1	5180	NV	NT	-40000	-7.722008	20	Pass
			LV	NT	-40000	-7.722008	20	Pass
			HV	NT	-40000	-7.722008	20	Pass
		5200	NV	NT	-40000	-7.692308	20	Pass
			LV	NT	-40000	-7.692308	20	Pass
			HV	NT	-40000	-7.692308	20	Pass
		5240	NV	NT	-20000	-3.816794	20	Pass
			LV	NT	-40000	-7.633588	20	Pass
			HV	NT	-60000	-11.450382	20	Pass
		5745	NV	NT	-60000	-10.443864	20	Pass
			LV	NT	-60000	-10.443864	20	Pass
			HV	NT	-60000	-10.443864	20	Pass
		5785	NV	NT	-60000	-10.371651	20	Pass
			LV	NT	-40000	-6.914434	20	Pass
			HV	NT	-60000	-10.371651	20	Pass
		5825	NV	NT	-60000	-10.300429	20	Pass
			LV	NT	-40000	-6.866953	20	Pass
			HV	NT	-60000	-10.300429	20	Pass
11AX40S ISO	Ant1	5190	NV	NT	-40000	-7.707129	20	Pass
			LV	NT	0	0	20	Pass
			HV	NT	-40000	-7.707129	20	Pass
		5230	NV	NT	-40000	-7.648184	20	Pass
			LV	NT	-40000	-7.648184	20	Pass
			HV	NT	-40000	-7.648184	20	Pass
		5755	NV	NT	-80000	-13.900956	20	Pass
			LV	NT	-40000	-6.950478	20	Pass
			HV	NT	-40000	-6.950478	20	Pass
		5795	NV	NT	-40000	-6.902502	20	Pass
			LV	NT	-40000	-6.902502	20	Pass
			HV	NT	-40000	-6.902502	20	Pass

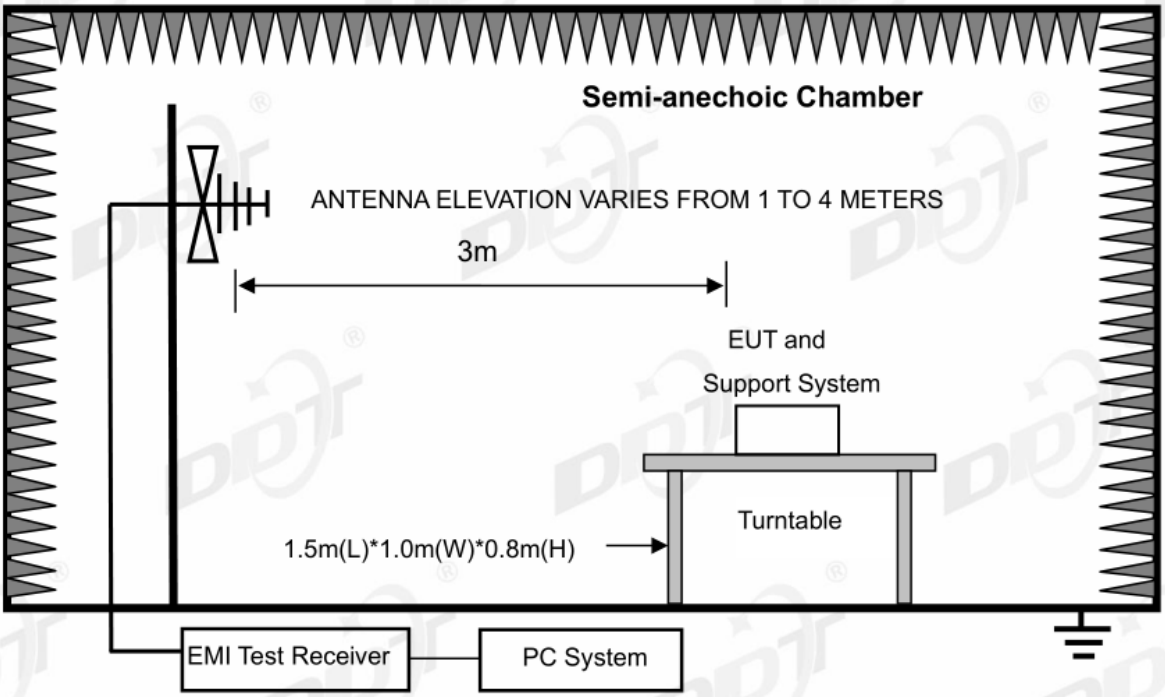
8. Emissions in restricted frequency bands

8.1. Block diagram of test setup

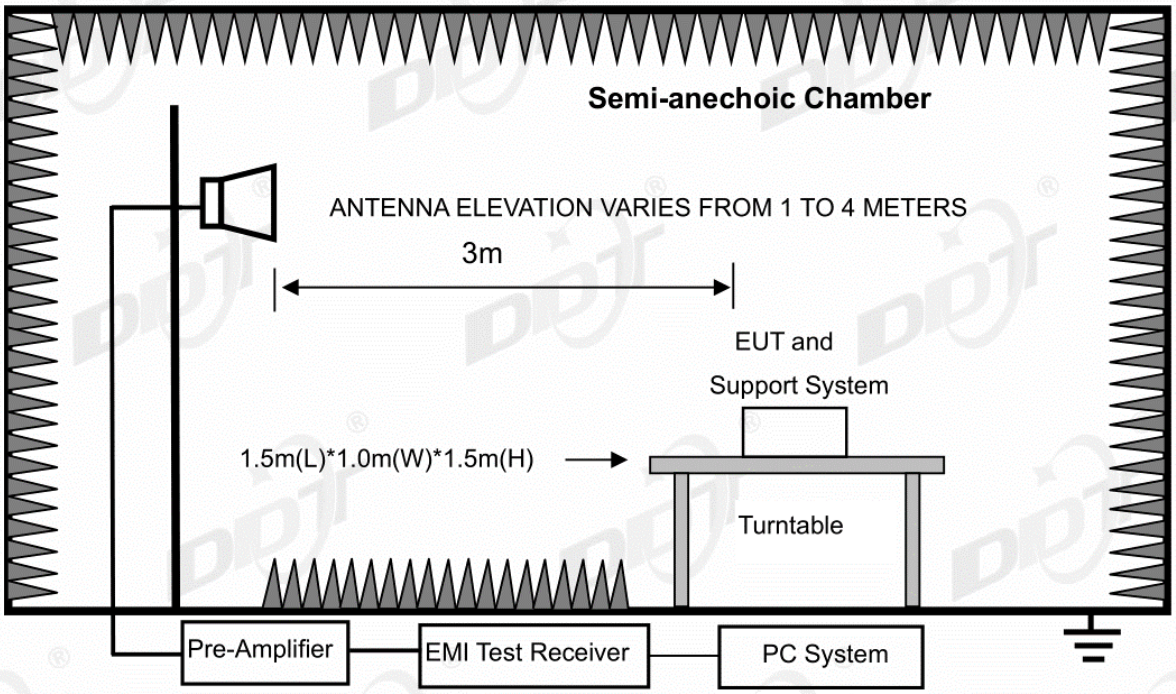
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

8.2. Limit

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

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

[2]Above 38.6

RSS-Gen section 8.10 Restricted frequency bands*

MHz	**MHz**	**MHz**	**GHz**
0.090-0.110	12.51975-12.52025	240-285	3.5-4.4
0.495-0.505	12.57675-12.57725	322-335.4	4.5-5.15
2.1735-2.1905	13.36-13.41	399.9-410	5.35-5.46
3.020-3.026	16.42-16.423	608-614	7.25-7.75
4.125-4.128	16.69475-16.69525	960-1427	8.025-8.5
4.1772&4.17775	16.80425-16.80475	1435-1626.5	9.0-9.2
4.2072&4.20775	25.5-25.67	1645.5-1646.5	9.3-9.5
5.677-5.683	37.5-38.25	1660-1710	10.6-12.7
6.215-6.218	73-74.6	1718.8-1722.2	13.25-13.4
6.26775-6.26825	74.8-75.2	2200-2300	14.47-14.5
6.31175-6.31225	108-138	2310-2390	15.35-16.2
8.291-8.294	149.9-150.05	2483.5-2500	17.7-21.4
8.362-8.366	156.52475-156.52525	2655-2900	22.01-23.12
8.37625-8.38675	156.7-156.9	3260-3267	23.6-24.0
8.41425-8.41475	162.0125-167.17	3332-3339	31.2-31.8
12.29-12.293	167.72-173.2	3345.8-3358	36.43-36.5
			Above 38.6

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

(2) FCC 15.209 Limit & RSS-Gen section 8.9 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m)= Limit_{30m}(dBuV/m) + 40Log(30m/3m)$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits

shown in 15.209, and the emissions appearing within RSS-Gen section 8.10 Restricted frequency bands shall not exceed the limits shown in RSS-Gen section 8.9, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits and RSS-Gen section 8.9 limits.

8.3. Test Procedure

(1) EUT height should be 0 m for below 1 GHz at a semi - anechoic chamber while EUT height should be 0 m for above 1GHz at full chamber or semi - anechoic chamber ground with absorbers

(2) Setup EUT and assistant system according clause 2.3 and 8.2

(3) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test distance
9 kHz-30 MHz	Active Loop antenna	3 m
30 MHz-1 GHz	Trilog Broadband Antenna	3 m
1 GHz-18 GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3 m
18 GHz-40 GHz	Horn Antenna(18GHz-40GHz)	1 m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(4) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 40 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 40 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz

to 40 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.

(5) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(6) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz-90kHz,110kHz-490kHz and above 1GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(7) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9 kHz-150 kHz	200 Hz
150 kHz-30 MHz	9 kHz
30 MHz-1 GHz	120 kHz

(8) For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3MHz for Peak measure, the RBW is set at 1 MHz, VBW is set at 10 Hz for AV value.

8.4. Test result

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits and RSS-Gen section 8.9 limits.

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Note1: According exploratory test no any obvious emission was detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in 11n20 mode.

Note3: For below test data, when the limit tabular marked “/” means this frequency point is the fundamental emission and no need comply with this limit.

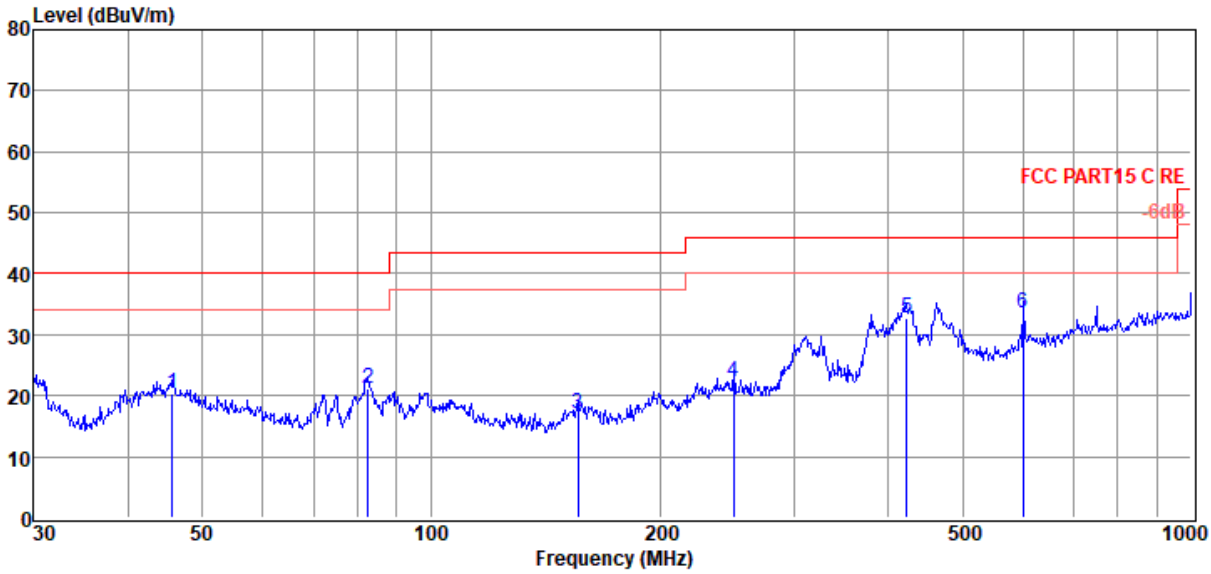
Note4: For simultaneous transmission of multiple channels in the BT, 2.4G WIFI and 5G WIFI no noticeable emission was found.

Note5: 30MHz~40GHz: (11a, 11n20, n40, 11ac20, 11ac40, 11ax20 and 11ax40 mode all have been tested, only 11n20 mode is the worst case and reported.)

Radiated Emission test (below 1GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC BELOW 1G.EM6	
Test Date	: 2022-04-01	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 VLUB 9163 3#/3m/HORIZONTAL
Memo	: 5GWIFI		

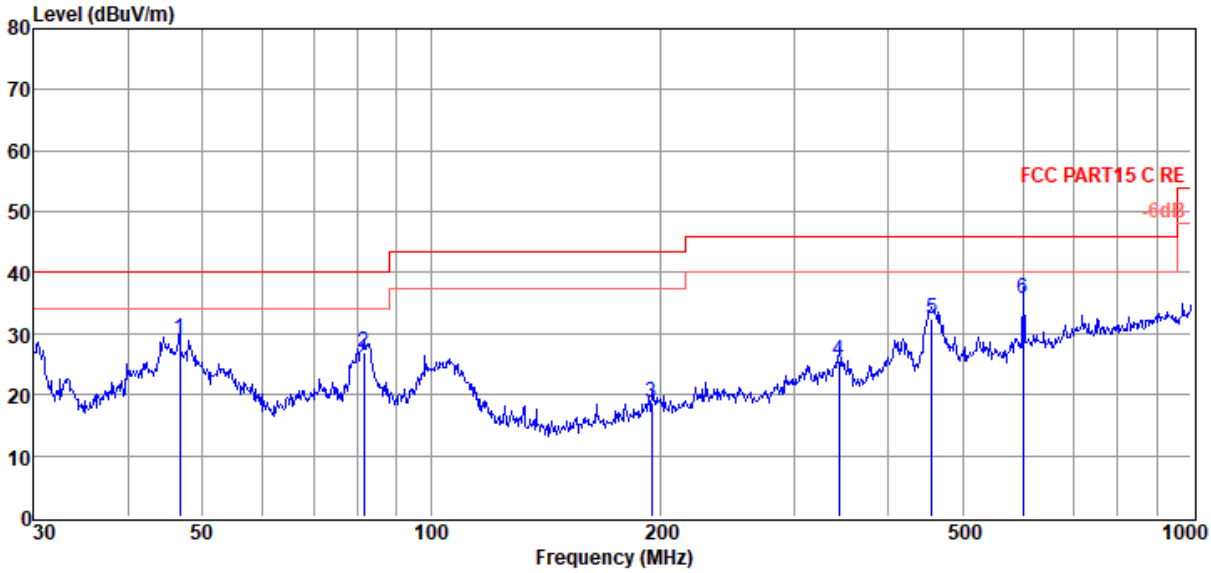


Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	45.70	2.04	14.75	3.65	20.44	40.00	-19.56	QP	HORIZONTAL
2	82.65	8.26	8.99	3.89	21.14	40.00	-18.86	QP	HORIZONTAL
3	155.91	4.44	8.30	4.28	17.02	43.50	-26.48	QP	HORIZONTAL
4	250.30	5.07	12.51	4.65	22.23	46.00	-23.77	QP	HORIZONTAL
5	422.06	11.62	15.94	5.23	32.79	46.00	-13.21	QP	HORIZONTAL
6	601.43	8.67	19.13	5.74	33.54	46.00	-12.46	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC BELOW 1G.EM6	
Test Date	: 2022-04-01	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 VLUB 9163 3#/3m/VERTICAL
Memo	: 5GWIFI		



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	46.67	11.17	14.20	3.65	29.02	40.00	-10.98	QP	VERTICAL
2	81.50	14.53	8.65	3.89	27.07	40.00	-12.93	QP	VERTICAL
3	195.14	2.52	11.71	4.43	18.66	43.50	-24.84	QP	VERTICAL
4	344.39	5.98	14.68	4.98	25.64	46.00	-20.36	QP	VERTICAL
5	455.91	11.22	15.82	5.34	32.38	46.00	-13.62	QP	VERTICAL
6	601.43	10.86	19.13	5.74	35.73	46.00	-10.27	QP	VERTICAL

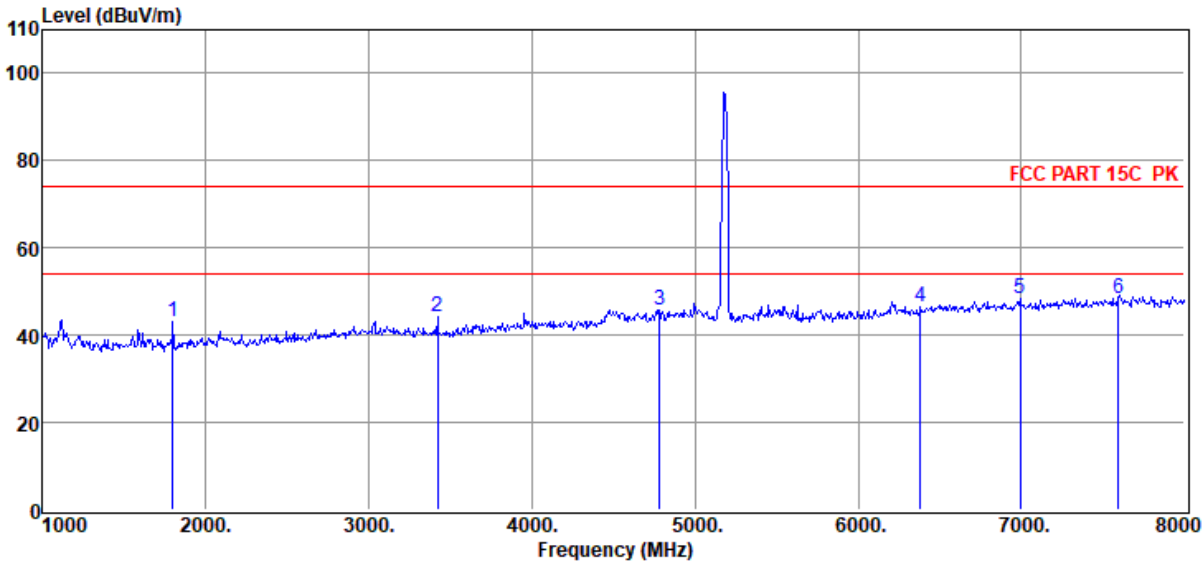
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission test (above 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5180		

Data: 92



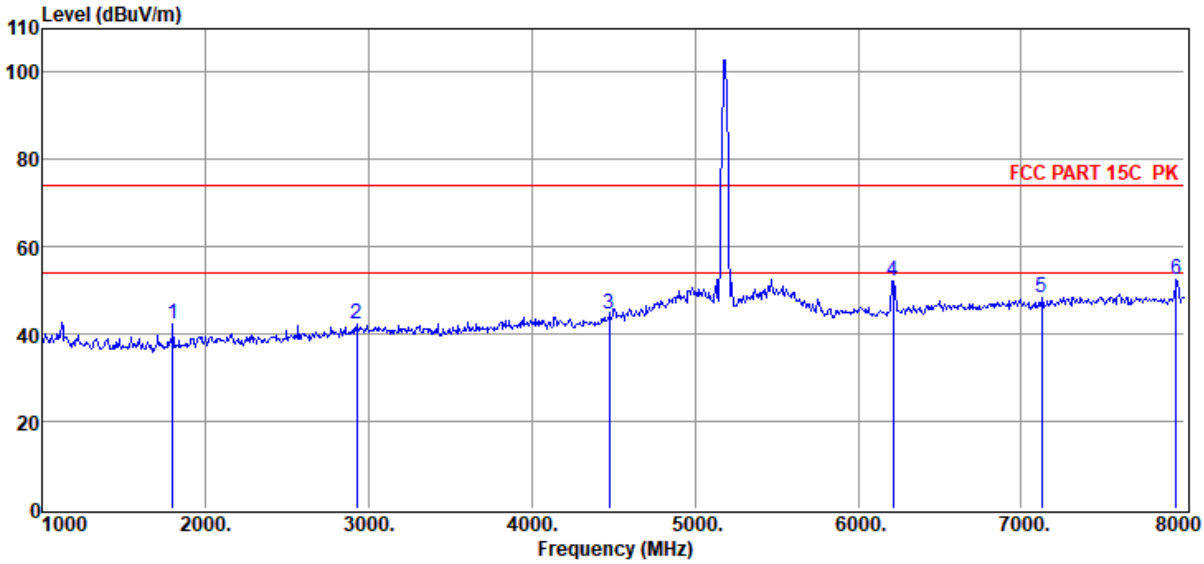
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1798.00	53.77	26.17	39.10	1.51	0.64	42.99	74.00	-31.01	Peak	VERTICAL
2	3422.00	52.34	29.42	40.03	1.72	0.82	44.27	74.00	-29.73	Peak	VERTICAL
3	4780.00	50.35	32.40	40.36	2.46	0.90	45.75	74.00	-28.25	Peak	VERTICAL
4	6383.00	47.48	34.92	40.19	3.21	1.06	46.48	74.00	-27.52	Peak	VERTICAL
5	6992.00	48.01	35.99	39.71	3.02	0.93	48.24	74.00	-25.76	Peak	VERTICAL
6	7594.00	47.45	36.51	39.76	3.15	1.08	48.43	74.00	-25.57	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5180		

Data: 93



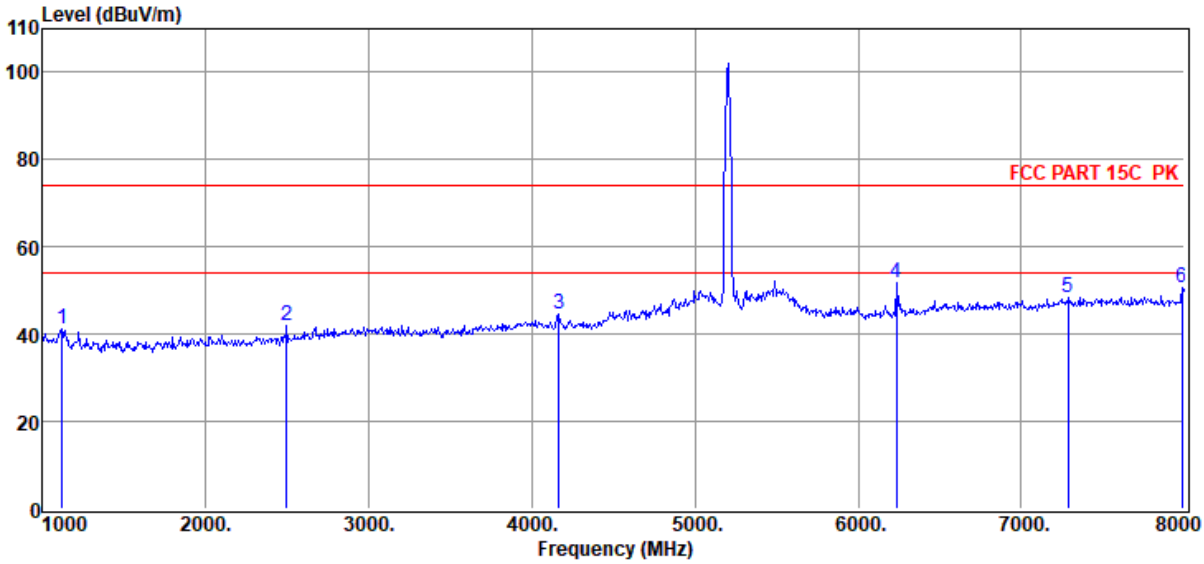
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1798.00	53.18	26.17	39.10	1.51	0.64	42.40	74.00	-31.60	Peak	HORIZONTAL
2	2925.00	50.38	29.22	39.86	1.85	0.78	42.37	74.00	-31.63	Peak	HORIZONTAL
3	4472.00	50.01	31.48	40.29	2.35	0.88	44.43	74.00	-29.57	Peak	HORIZONTAL
4	6215.00	53.79	34.52	40.33	3.13	1.09	52.20	74.00	-21.80	Peak	HORIZONTAL
5	7125.00	47.94	36.10	39.71	3.05	0.96	48.34	74.00	-25.66	Peak	HORIZONTAL
6	7951.00	50.97	36.94	39.80	3.19	1.17	52.47	74.00	-21.53	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5200		

Data: 94



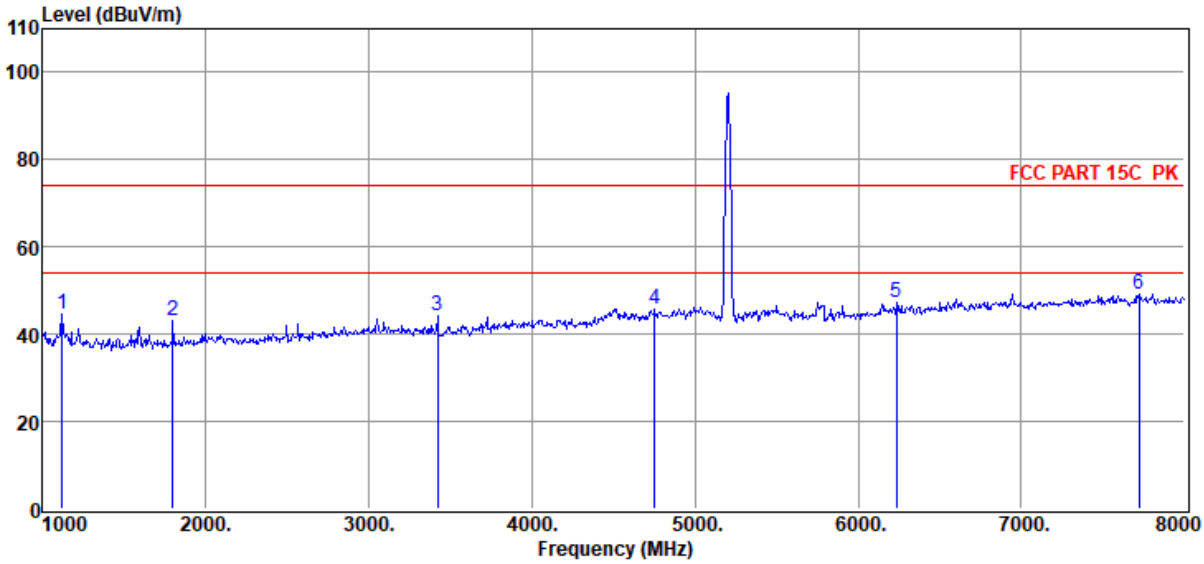
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1119.00	52.26	25.48	38.08	1.17	0.52	41.35	74.00	-32.65	Peak	HORIZONTAL
2	2498.00	51.56	27.60	39.65	1.74	0.73	41.98	74.00	-32.02	Peak	HORIZONTAL
3	4164.00	50.58	31.23	40.23	2.19	0.87	44.64	74.00	-29.36	Peak	HORIZONTAL
4	6236.00	53.33	34.57	40.31	3.14	1.09	51.82	74.00	-22.18	Peak	HORIZONTAL
5	7286.00	47.76	36.23	39.73	3.09	1.00	48.35	74.00	-25.65	Peak	HORIZONTAL
6	7986.00	49.02	36.98	39.80	3.19	1.18	50.57	74.00	-23.43	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5200		

Data: 95



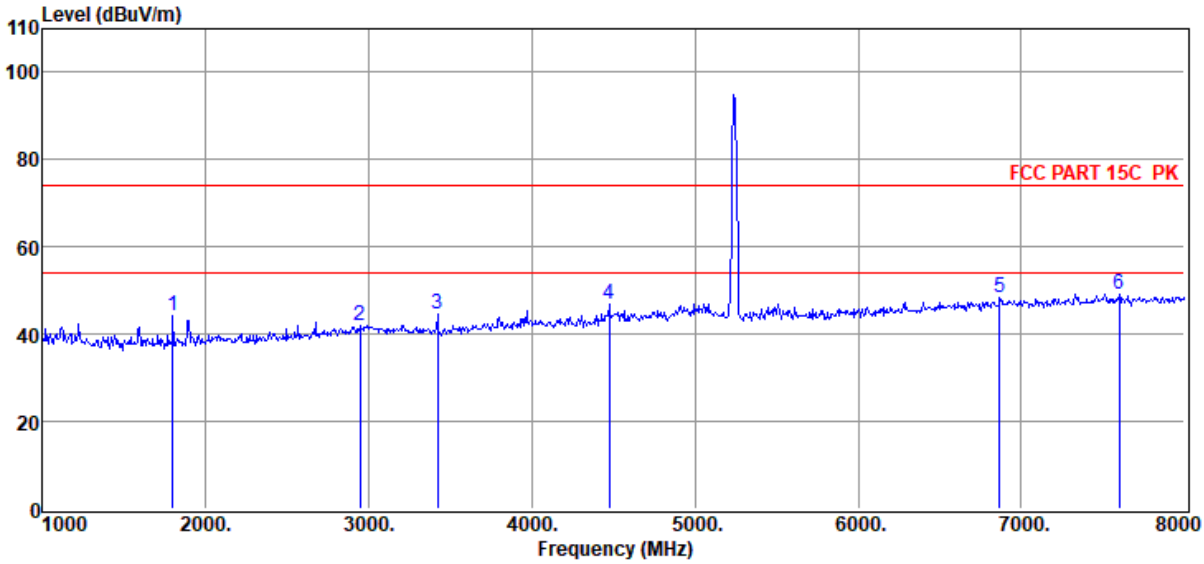
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1119.00	55.38	25.48	38.08	1.17	0.52	44.47	74.00	-29.53	Peak	VERTICAL
2	1798.00	53.73	26.17	39.10	1.51	0.64	42.95	74.00	-31.05	Peak	VERTICAL
3	3422.00	52.11	29.42	40.03	1.72	0.82	44.04	74.00	-29.96	Peak	VERTICAL
4	4752.00	50.45	32.31	40.35	2.45	0.90	45.76	74.00	-28.24	Peak	VERTICAL
5	6236.00	48.62	34.57	40.31	3.14	1.09	47.11	74.00	-26.89	Peak	VERTICAL
6	7720.00	47.89	36.66	39.77	3.16	1.11	49.05	74.00	-24.95	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5240		

Data: 96



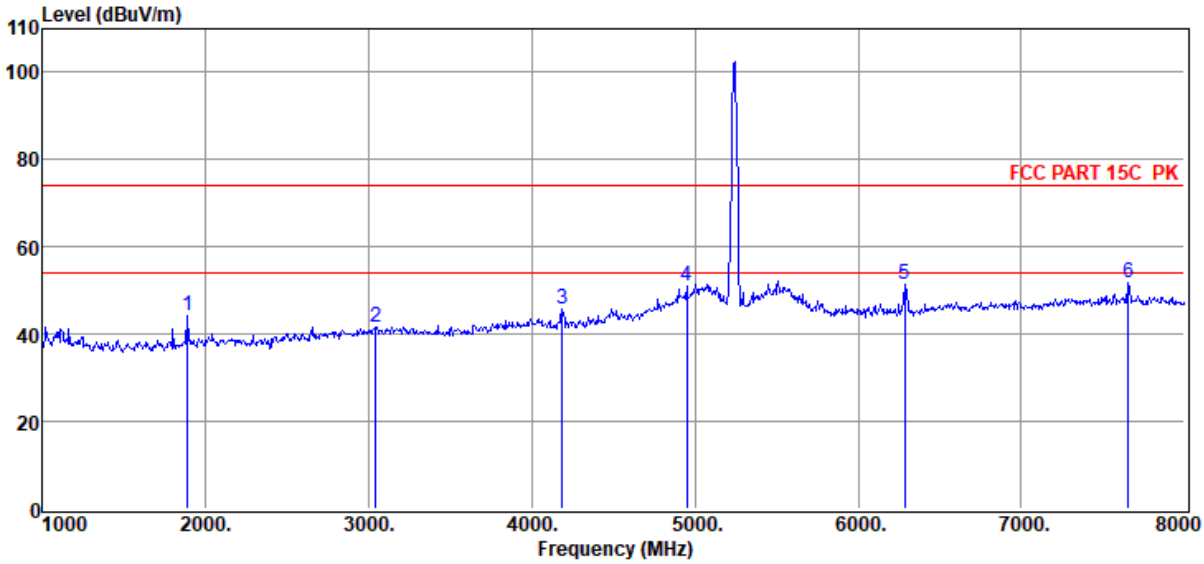
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1798.00	55.00	26.17	39.10	1.51	0.64	44.22	74.00	-29.78	Peak	VERTICAL
2	2946.00	50.03	29.29	39.87	1.86	0.78	42.09	74.00	-31.91	Peak	VERTICAL
3	3422.00	52.85	29.42	40.03	1.72	0.82	44.78	74.00	-29.22	Peak	VERTICAL
4	4472.00	52.46	31.48	40.29	2.35	0.88	46.88	74.00	-27.12	Peak	VERTICAL
5	6866.00	48.17	35.79	39.81	3.09	0.96	48.20	74.00	-25.80	Peak	VERTICAL
6	7601.00	47.96	36.52	39.76	3.15	1.08	48.95	74.00	-25.05	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5240		

Data: 97



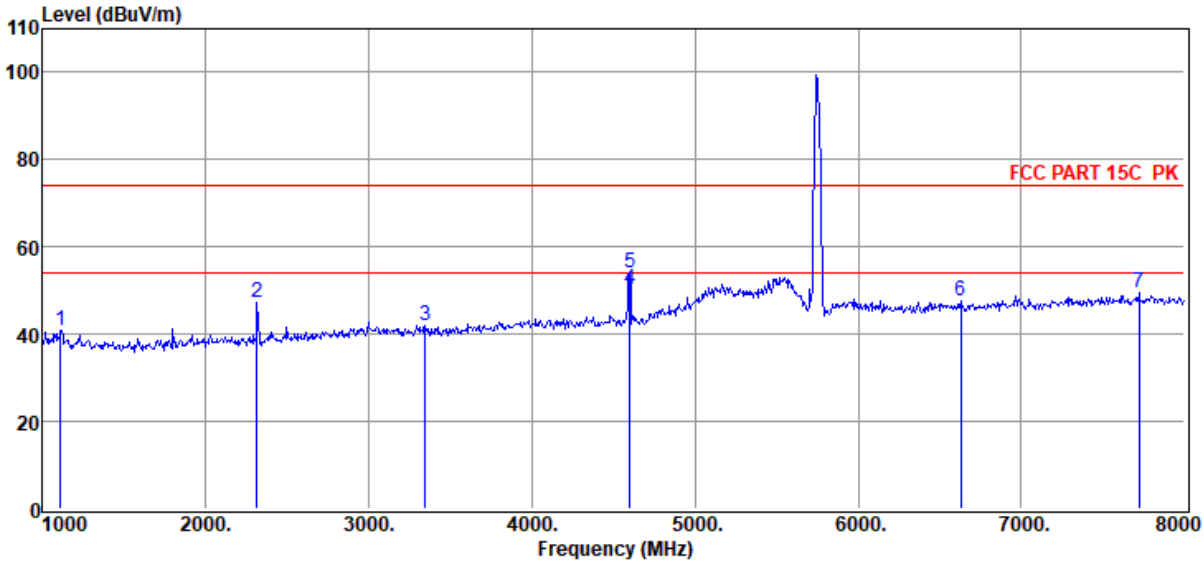
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1889.00	54.65	26.41	39.23	1.55	0.66	44.04	74.00	-29.96	Peak	HORIZONTAL
2	3044.00	49.38	29.49	39.91	1.85	0.79	41.60	74.00	-32.40	Peak	HORIZONTAL
3	4185.00	51.49	31.25	40.24	2.20	0.87	45.57	74.00	-28.43	Peak	HORIZONTAL
4	4948.00	54.98	32.93	40.39	2.52	0.91	50.95	74.00	-23.05	Peak	HORIZONTAL
5	6285.00	52.87	34.68	40.27	3.17	1.08	51.53	74.00	-22.47	Peak	HORIZONTAL
6	7657.00	50.83	36.59	39.77	3.16	1.09	51.90	74.00	-22.10	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5745		

Data: 98



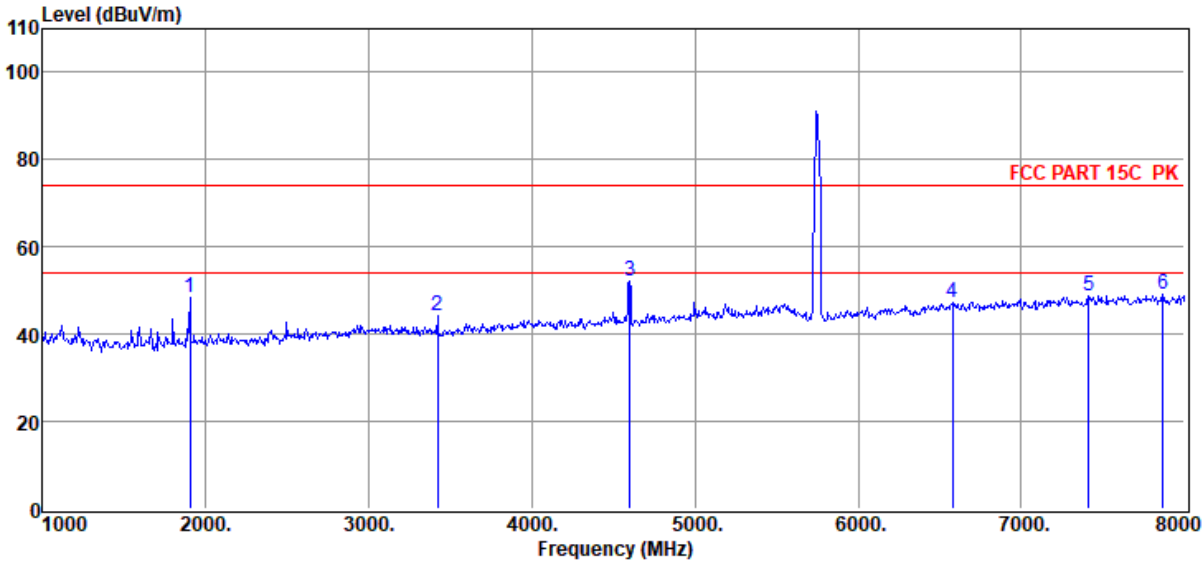
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1112.00	51.82	25.48	38.07	1.16	0.52	40.91	74.00	-33.09	Peak	HORIZONTAL
2	2316.00	57.33	27.27	39.56	1.69	0.71	47.44	74.00	-26.56	Peak	HORIZONTAL
3	3345.00	49.82	29.43	40.00	1.75	0.81	41.81	74.00	-32.19	Peak	HORIZONTAL
4	4598.00	55.41	31.81	40.32	2.40	0.89	50.19	54.00	-3.81	Average	HORIZONTAL
5	4598.00	59.22	31.81	40.32	2.40	0.89	54.00	74.00	-20.00	Peak	HORIZONTAL
6	6628.00	48.16	35.40	40.00	3.21	1.01	47.78	74.00	-26.22	Peak	HORIZONTAL
7	7720.00	48.23	36.66	39.77	3.16	1.11	49.39	74.00	-24.61	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5745		

Data: 99



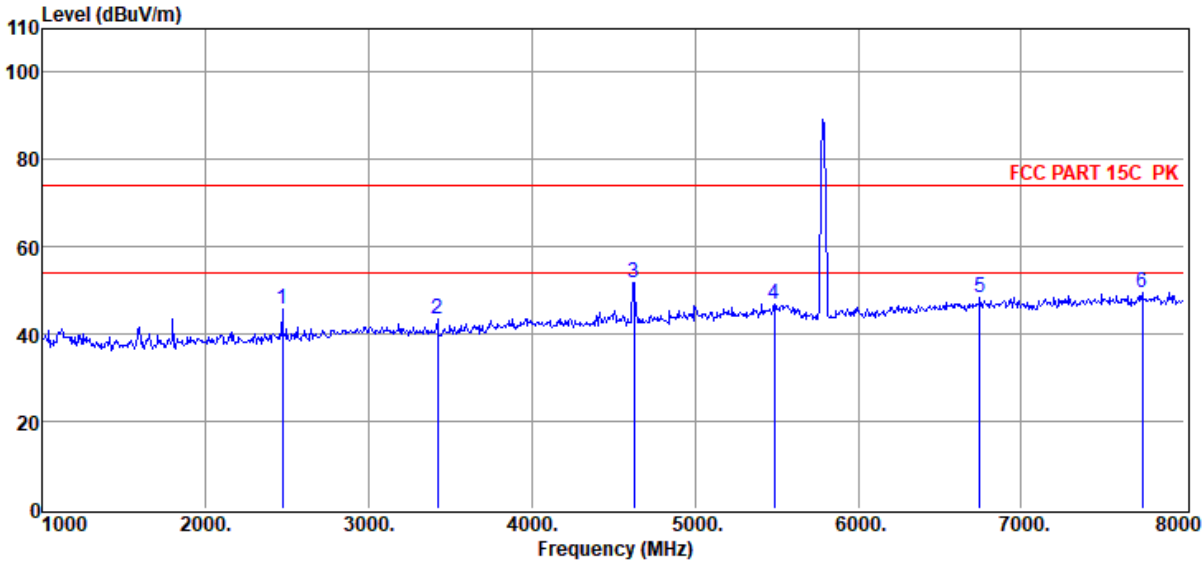
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1903.00	58.83	26.45	39.25	1.56	0.66	48.25	74.00	-25.75	Peak	VERTICAL
2	3422.00	52.19	29.42	40.03	1.72	0.82	44.12	74.00	-29.88	Peak	VERTICAL
3	4598.00	57.48	31.81	40.32	2.40	0.89	52.26	74.00	-21.74	Peak	VERTICAL
4	6579.00	47.53	35.33	40.04	3.23	1.02	47.07	74.00	-26.93	Peak	VERTICAL
5	7412.00	47.87	36.33	39.74	3.12	1.03	48.61	74.00	-25.39	Peak	VERTICAL
6	7867.00	47.80	36.84	39.79	3.18	1.15	49.18	74.00	-24.82	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5785		

Data: 100



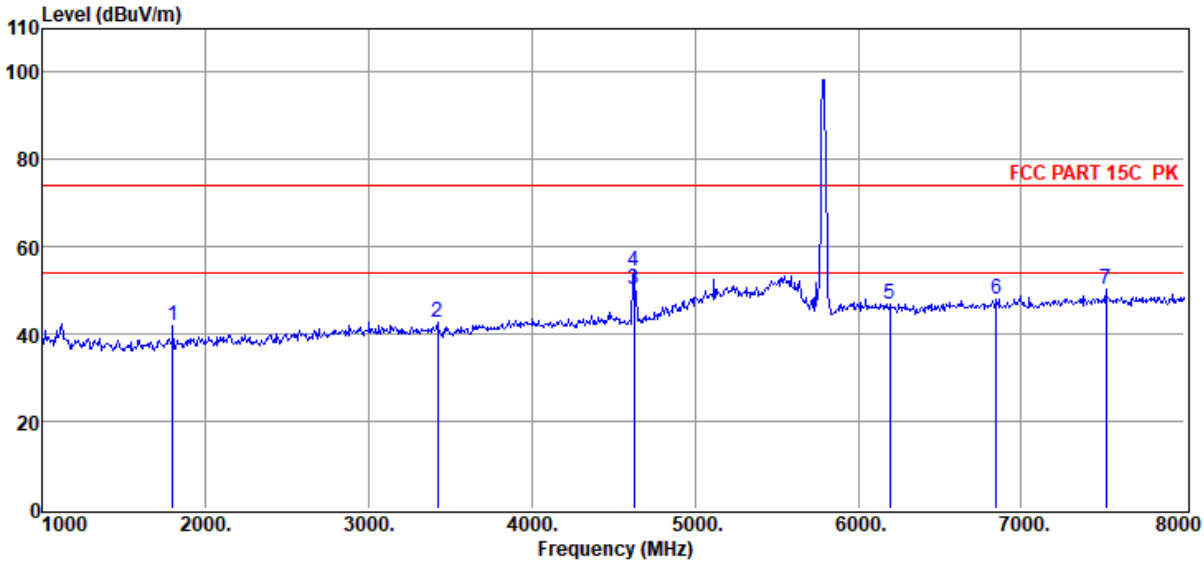
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2470.00	55.22	27.55	39.64	1.73	0.73	45.59	74.00	-28.41	Peak	VERTICAL
2	3422.00	51.69	29.42	40.03	1.72	0.82	43.62	74.00	-30.38	Peak	VERTICAL
3	4626.00	57.00	31.90	40.33	2.41	0.89	51.87	74.00	-22.13	Peak	VERTICAL
4	5487.00	50.86	32.81	40.45	2.57	1.02	46.81	74.00	-27.19	Peak	VERTICAL
5	6747.00	48.48	35.60	39.90	3.15	0.98	48.31	74.00	-25.69	Peak	VERTICAL
6	7741.00	48.19	36.69	39.77	3.16	1.12	49.39	74.00	-24.61	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5785		

Data: 101



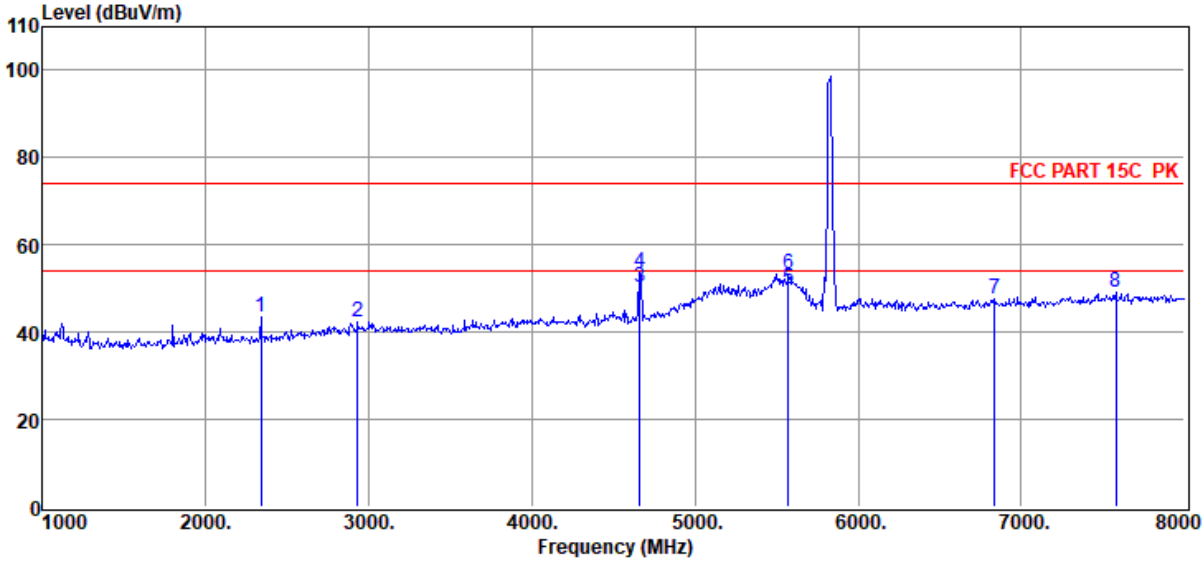
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1798.00	52.90	26.17	39.10	1.51	0.64	42.12	74.00	-31.88	Peak	HORIZONTAL
2	3422.00	50.94	29.42	40.03	1.72	0.82	42.87	74.00	-31.13	Peak	HORIZONTAL
3	4626.00	55.22	31.90	40.33	2.41	0.89	50.09	54.00	-3.91	Average	HORIZONTAL
4	4626.00	59.55	31.90	40.33	2.41	0.89	54.42	74.00	-19.58	Peak	HORIZONTAL
5	6194.00	48.58	34.47	40.34	3.12	1.10	46.93	74.00	-27.07	Peak	HORIZONTAL
6	6845.00	48.08	35.75	39.82	3.10	0.96	48.07	74.00	-25.93	Peak	HORIZONTAL
7	7517.00	49.27	36.42	39.75	3.14	1.06	50.14	74.00	-23.86	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5825		

Data: 102



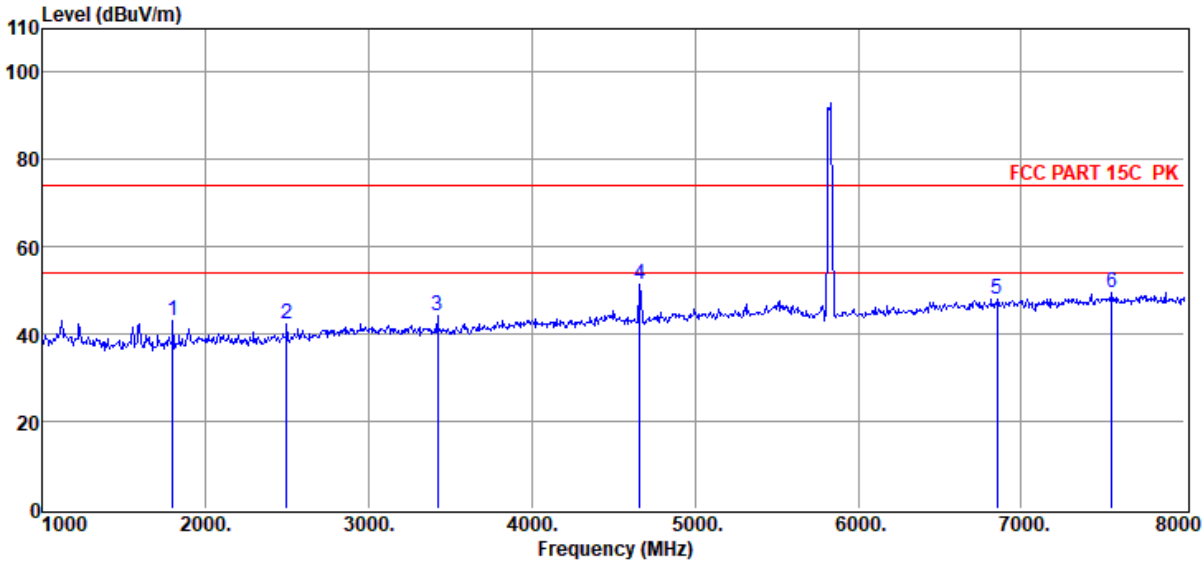
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2337.00	53.19	27.31	39.57	1.69	0.72	43.34	74.00	-30.66	Peak	HORIZONTAL
2	2932.00	50.47	29.24	39.87	1.85	0.78	42.47	74.00	-31.53	Peak	HORIZONTAL
3	4661.00	55.29	32.02	40.33	2.42	0.89	50.29	54.00	-3.71	Average	HORIZONTAL
4	4661.00	58.75	32.02	40.33	2.42	0.89	53.75	74.00	-20.25	Peak	HORIZONTAL
5	5571.00	53.67	32.97	40.46	2.64	1.04	49.86	54.00	-4.14	Average	HORIZONTAL
6	5571.00	57.19	32.97	40.46	2.64	1.04	53.38	74.00	-20.62	Peak	HORIZONTAL
7	6838.00	47.72	35.74	39.83	3.10	0.96	47.69	74.00	-26.31	Peak	HORIZONTAL
8	7580.00	48.23	36.50	39.76	3.15	1.07	49.19	74.00	-24.81	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5825		

Data: 103



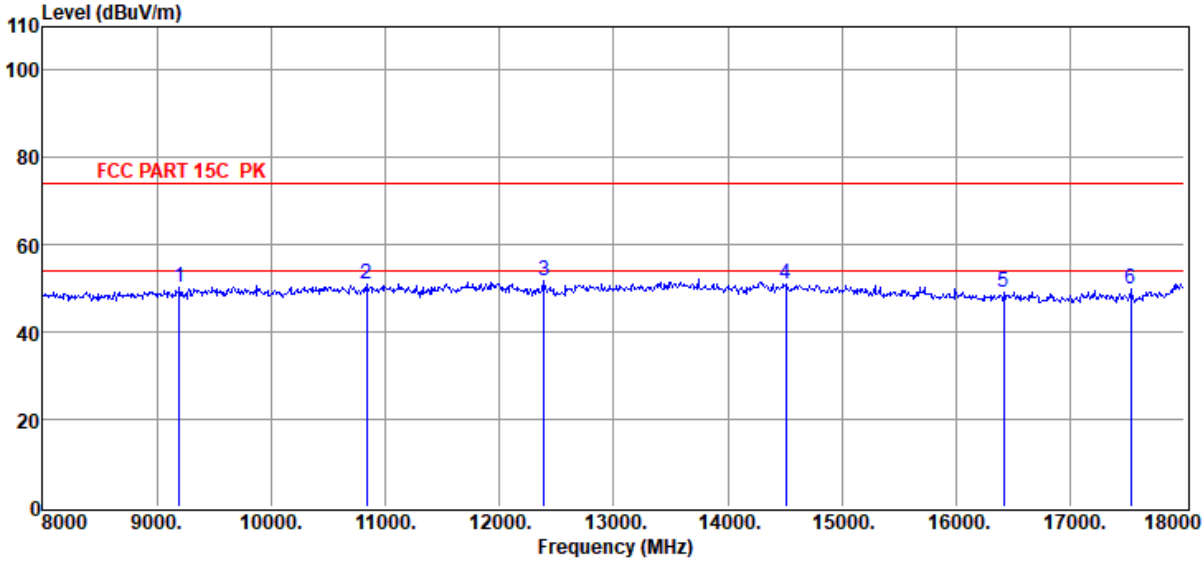
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	1798.00	53.87	26.17	39.10	1.51	0.64	43.09	74.00	-30.91	Peak	VERTICAL
2	2498.00	52.05	27.60	39.65	1.74	0.73	42.47	74.00	-31.53	Peak	VERTICAL
3	3422.00	52.29	29.42	40.03	1.72	0.82	44.22	74.00	-29.78	Peak	VERTICAL
4	4661.00	56.46	32.02	40.33	2.42	0.89	51.46	74.00	-22.54	Peak	VERTICAL
5	6852.00	48.18	35.76	39.82	3.09	0.96	48.17	74.00	-25.83	Peak	VERTICAL
6	7552.00	48.67	36.46	39.76	3.15	1.07	49.59	74.00	-24.41	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5180		

Data: 104



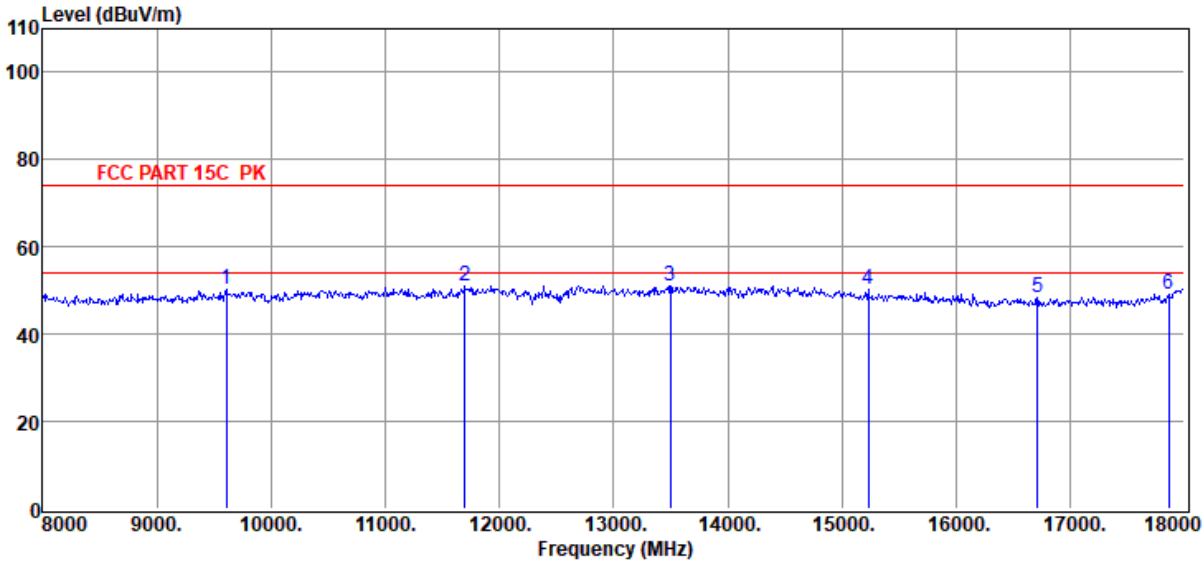
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	9200.00	45.56	38.46	40.04	3.45	2.85	50.28	74.00	-23.72	Peak	VERTICAL
2	10840.00	45.52	39.20	40.26	3.76	2.69	50.91	74.00	-23.09	Peak	VERTICAL
3	12390.00	46.54	39.04	40.22	3.78	2.48	51.62	74.00	-22.38	Peak	VERTICAL
4	14510.00	43.94	39.89	39.65	4.35	2.54	51.07	74.00	-22.93	Peak	VERTICAL
5	16420.00	43.66	37.90	39.98	4.71	2.93	49.22	74.00	-24.78	Peak	VERTICAL
6	17530.00	42.88	39.59	40.42	4.83	2.98	49.86	74.00	-24.14	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5180		

Data: 105



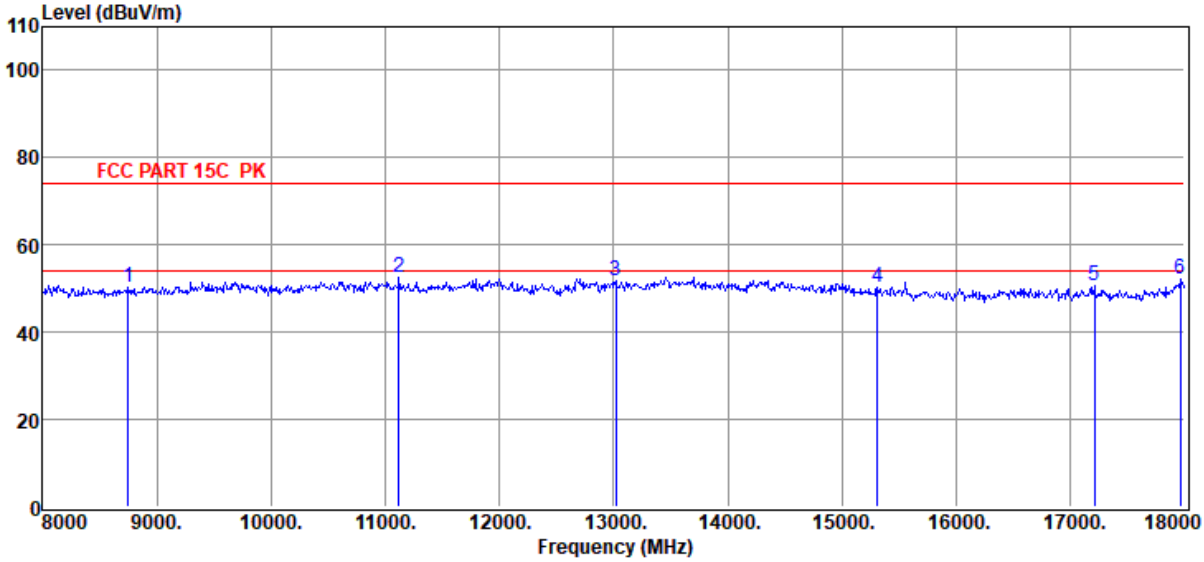
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	9610.00	45.44	38.63	40.33	3.63	2.95	50.32	74.00	-23.68	Peak	HORIZONTAL
2	11700.00	45.75	39.08	40.13	4.00	2.44	51.14	74.00	-22.86	Peak	HORIZONTAL
3	13500.00	44.42	40.00	40.05	3.99	2.67	51.03	74.00	-22.97	Peak	HORIZONTAL
4	15230.00	43.89	39.18	39.67	4.51	2.44	50.35	74.00	-23.65	Peak	HORIZONTAL
5	16710.00	42.24	38.15	40.04	4.72	3.16	48.23	74.00	-25.77	Peak	HORIZONTAL
6	17860.00	40.56	41.63	40.62	4.92	2.72	49.21	74.00	-24.79	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5200		

Data: 106



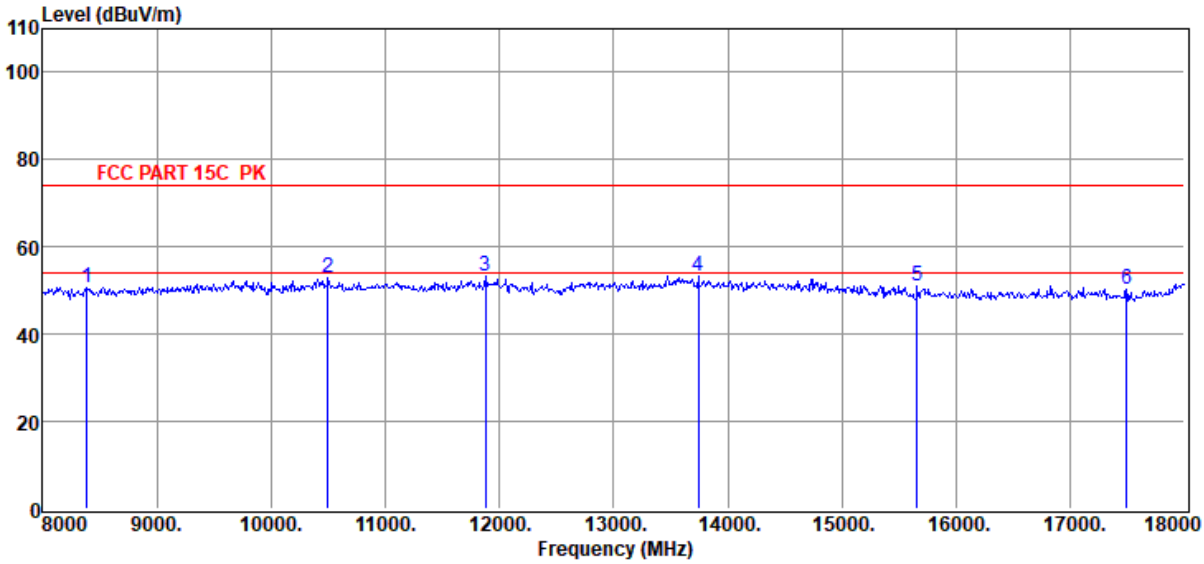
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8750.00	46.21	38.05	39.88	3.28	2.78	50.44	74.00	-23.56	Peak	HORIZONTAL
2	11120.00	47.06	39.23	40.19	3.84	2.59	52.53	74.00	-21.47	Peak	HORIZONTAL
3	13020.00	45.45	39.62	40.39	4.38	2.65	51.71	74.00	-22.29	Peak	HORIZONTAL
4	15310.00	44.03	39.07	39.69	4.53	2.46	50.40	74.00	-23.60	Peak	HORIZONTAL
5	17210.00	43.99	38.88	40.23	4.76	3.23	50.63	74.00	-23.37	Peak	HORIZONTAL
6	17960.00	42.84	42.25	40.68	4.95	2.64	52.00	74.00	-22.00	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5200		

Data: 107



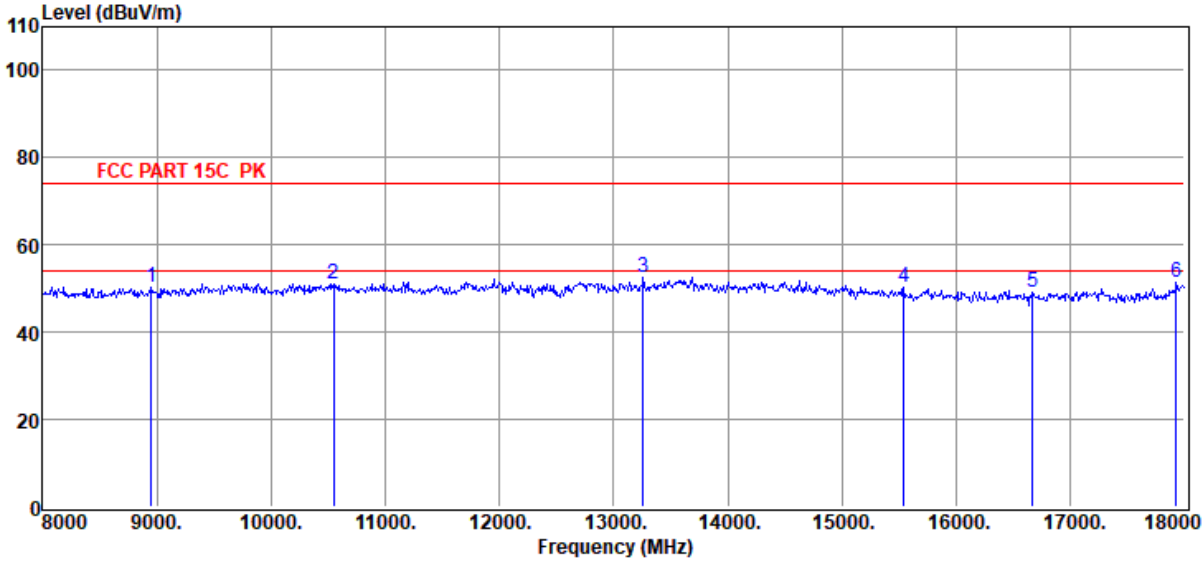
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8390.00	46.95	37.62	39.84	3.21	2.75	50.69	74.00	-23.31	Peak	VERTICAL
2	10500.00	47.64	39.00	40.40	3.67	2.83	52.74	74.00	-21.26	Peak	VERTICAL
3	11880.00	48.00	39.15	40.11	4.03	2.40	53.47	74.00	-20.53	Peak	VERTICAL
4	13740.00	46.24	39.95	39.88	4.25	2.68	53.24	74.00	-20.76	Peak	VERTICAL
5	15660.00	45.11	38.51	39.80	4.57	2.53	50.92	74.00	-23.08	Peak	VERTICAL
6	17490.00	43.35	39.38	40.39	4.82	3.01	50.17	74.00	-23.83	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5240		

Data: 108



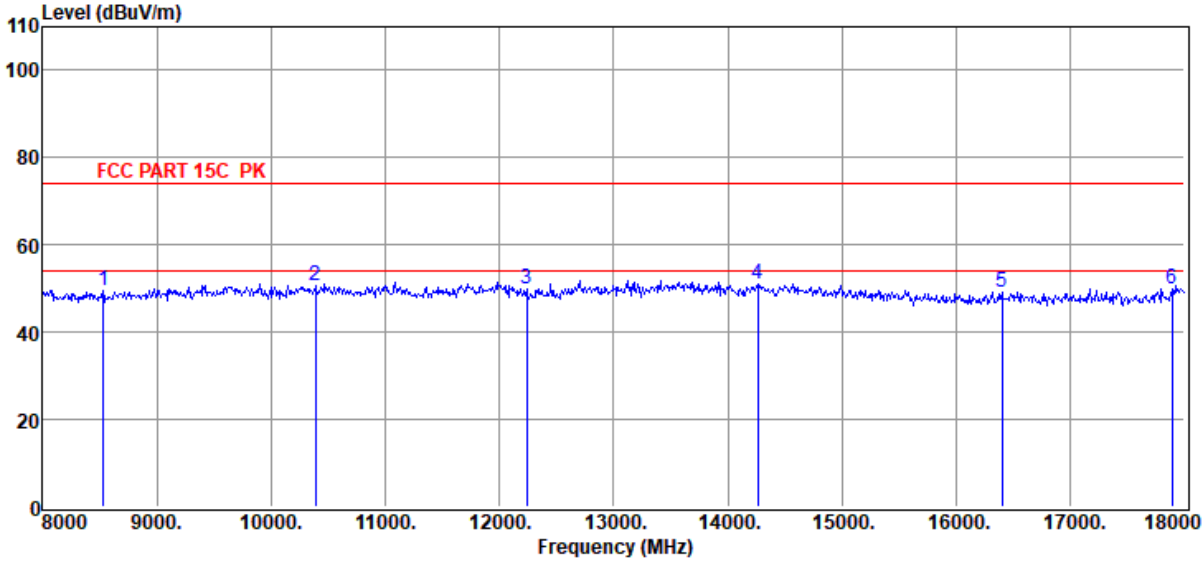
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8950.00	45.66	38.25	39.90	3.32	2.80	50.13	74.00	-23.87	Peak	VERTICAL
2	10550.00	45.75	39.03	40.38	3.68	2.81	50.89	74.00	-23.11	Peak	VERTICAL
3	13260.00	45.93	39.81	40.22	4.19	2.66	52.37	74.00	-21.63	Peak	VERTICAL
4	15540.00	44.35	38.73	39.76	4.56	2.50	50.38	74.00	-23.62	Peak	VERTICAL
5	16670.00	43.13	38.10	40.03	4.72	3.13	49.05	74.00	-24.95	Peak	VERTICAL
6	17930.00	42.49	42.07	40.66	4.94	2.66	51.50	74.00	-22.50	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5240		

Data: 109



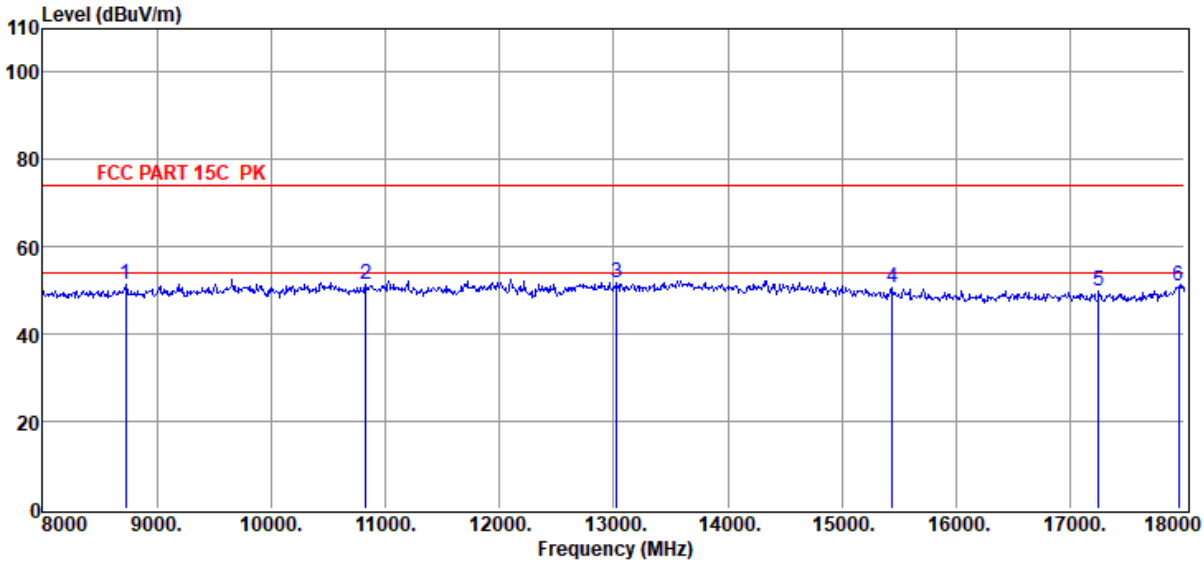
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8530.00	45.64	37.83	39.85	3.23	2.76	49.61	74.00	-24.39	Peak	HORIZONTAL
2	10390.00	45.59	38.87	40.44	3.67	2.88	50.57	74.00	-23.43	Peak	HORIZONTAL
3	12240.00	44.74	39.10	40.17	3.89	2.44	50.00	74.00	-24.00	Peak	HORIZONTAL
4	14260.00	43.83	39.90	39.67	4.44	2.61	51.11	74.00	-22.89	Peak	HORIZONTAL
5	16400.00	43.73	37.90	39.98	4.70	2.92	49.27	74.00	-24.73	Peak	HORIZONTAL
6	17890.00	41.05	41.82	40.63	4.93	2.70	49.87	74.00	-24.13	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5745		

Data: 110



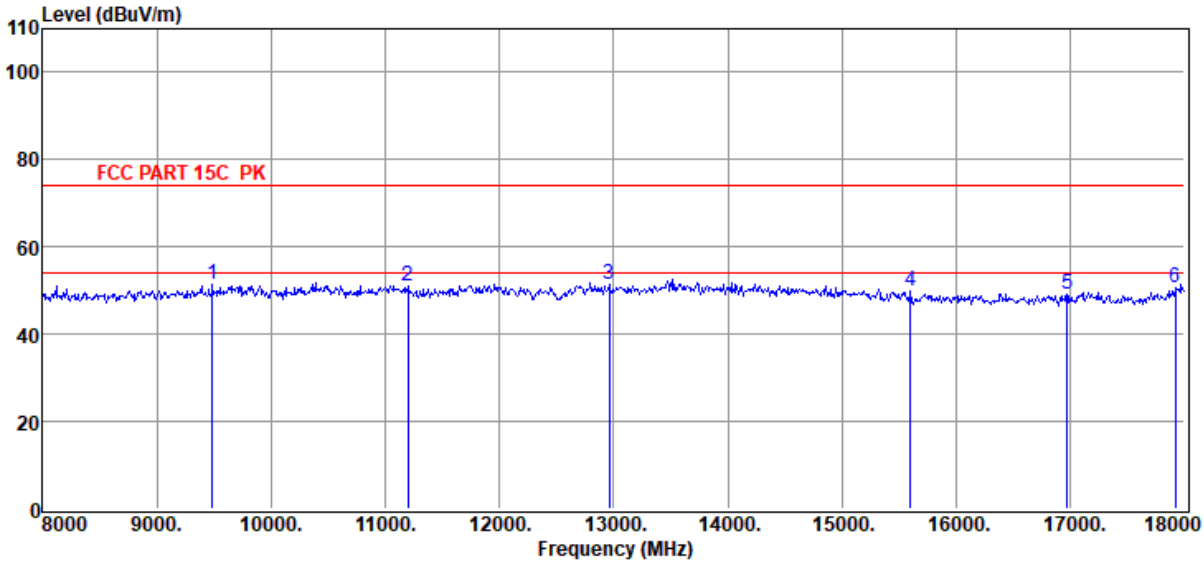
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8730.00	47.16	38.03	39.87	3.27	2.78	51.37	74.00	-22.63	Peak	HORIZONTAL
2	10830.00	45.86	39.20	40.27	3.76	2.69	51.24	74.00	-22.76	Peak	HORIZONTAL
3	13030.00	45.60	39.62	40.38	4.38	2.65	51.87	74.00	-22.13	Peak	HORIZONTAL
4	15440.00	44.40	38.88	39.73	4.55	2.48	50.58	74.00	-23.42	Peak	HORIZONTAL
5	17250.00	43.11	38.95	40.25	4.77	3.20	49.78	74.00	-24.22	Peak	HORIZONTAL
6	17950.00	41.79	42.19	40.67	4.95	2.65	50.91	74.00	-23.09	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5745		

Data: 111



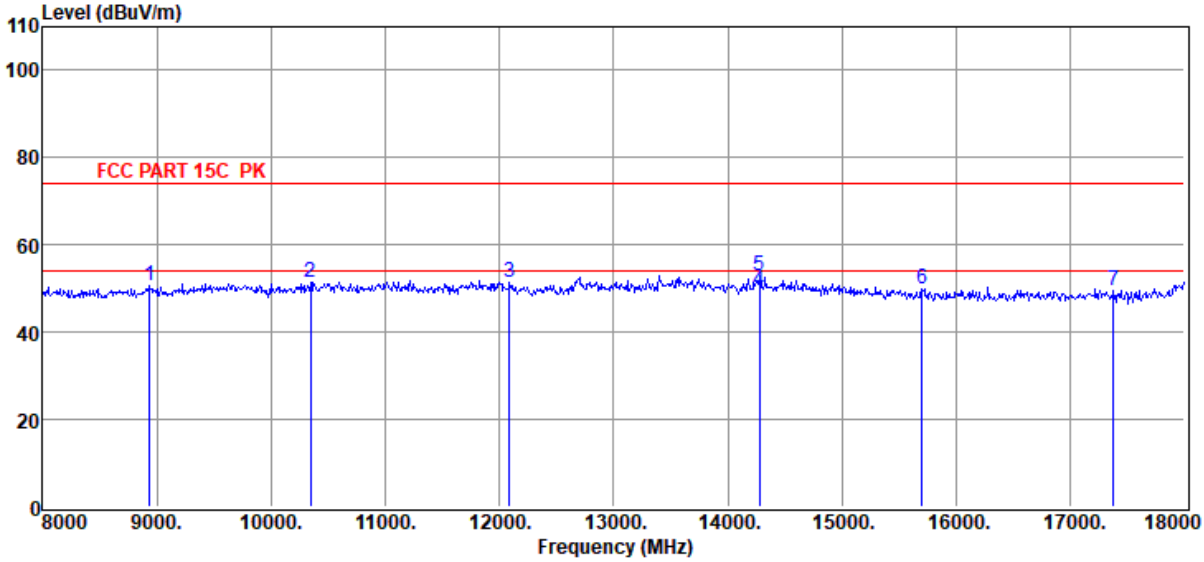
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	9490.00	46.56	38.69	40.24	3.61	2.92	51.54	74.00	-22.46	Peak	VERTICAL
2	11200.00	45.64	39.18	40.18	3.87	2.57	51.08	74.00	-22.92	Peak	VERTICAL
3	12960.00	45.44	39.55	40.39	4.34	2.64	51.58	74.00	-22.42	Peak	VERTICAL
4	15600.00	43.96	38.62	39.78	4.57	2.52	49.89	74.00	-24.11	Peak	VERTICAL
5	16970.00	42.82	38.46	40.09	4.71	3.37	49.27	74.00	-24.73	Peak	VERTICAL
6	17920.00	41.78	42.00	40.65	4.94	2.67	50.74	74.00	-23.26	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5785		

Data: 112



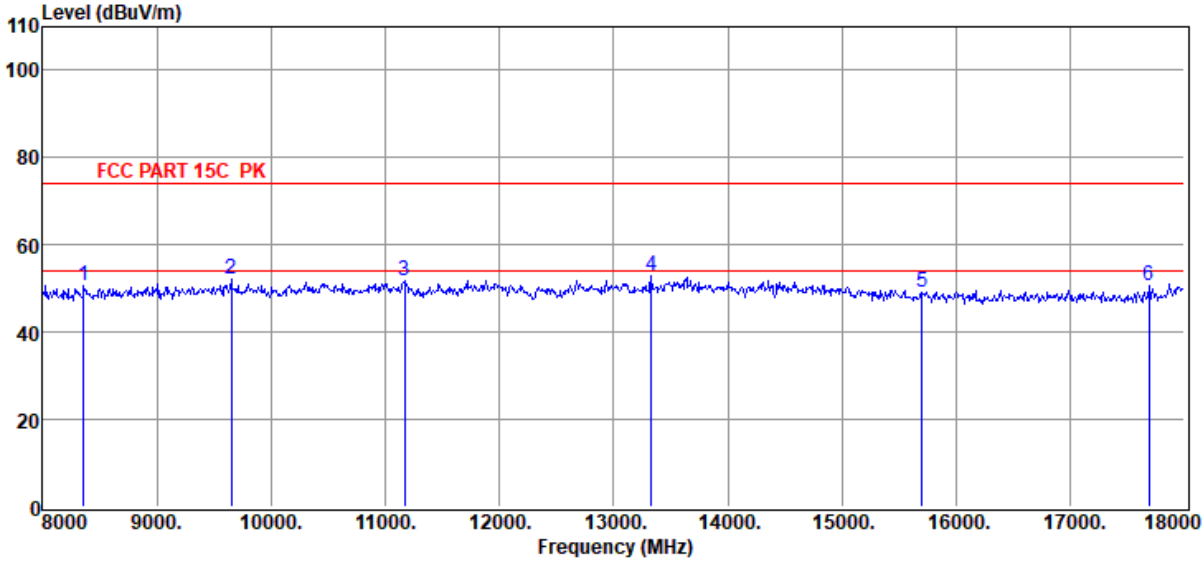
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8940.00	46.11	38.24	39.89	3.32	2.80	50.58	74.00	-23.42	Peak	VERTICAL
2	10350.00	46.43	38.82	40.46	3.67	2.89	51.35	74.00	-22.65	Peak	VERTICAL
3	12090.00	46.02	39.16	40.13	3.99	2.40	51.44	74.00	-22.56	Peak	VERTICAL
4	14280.00	42.10	39.90	39.67	4.43	2.61	49.37	54.00	-4.63	Average	VERTICAL
5	14280.00	45.66	39.90	39.67	4.43	2.61	52.93	74.00	-21.07	Peak	VERTICAL
6	15700.00	44.33	38.44	39.81	4.58	2.54	50.08	74.00	-23.92	Peak	VERTICAL
7	17380.00	42.91	39.18	40.33	4.79	3.09	49.64	74.00	-24.36	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5785		

Data: 113



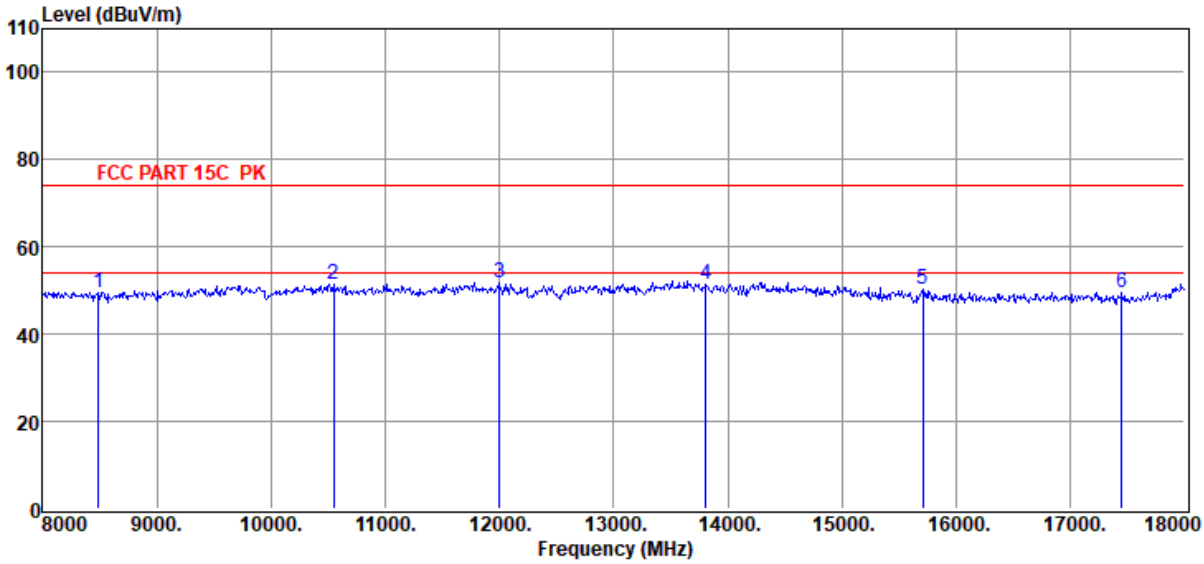
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8360.00	47.00	37.58	39.84	3.21	2.75	50.70	74.00	-23.30	Peak	HORIZONTAL
2	9650.00	47.14	38.61	40.35	3.63	2.96	51.99	74.00	-22.01	Peak	HORIZONTAL
3	11170.00	46.40	39.20	40.18	3.86	2.58	51.86	74.00	-22.14	Peak	HORIZONTAL
4	13330.00	46.26	39.86	40.17	4.13	2.66	52.74	74.00	-21.26	Peak	HORIZONTAL
5	15700.00	43.54	38.44	39.81	4.58	2.54	49.29	74.00	-24.71	Peak	HORIZONTAL
6	17690.00	42.89	40.58	40.51	4.87	2.85	50.68	74.00	-23.32	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11n20 5825		

Data: 114



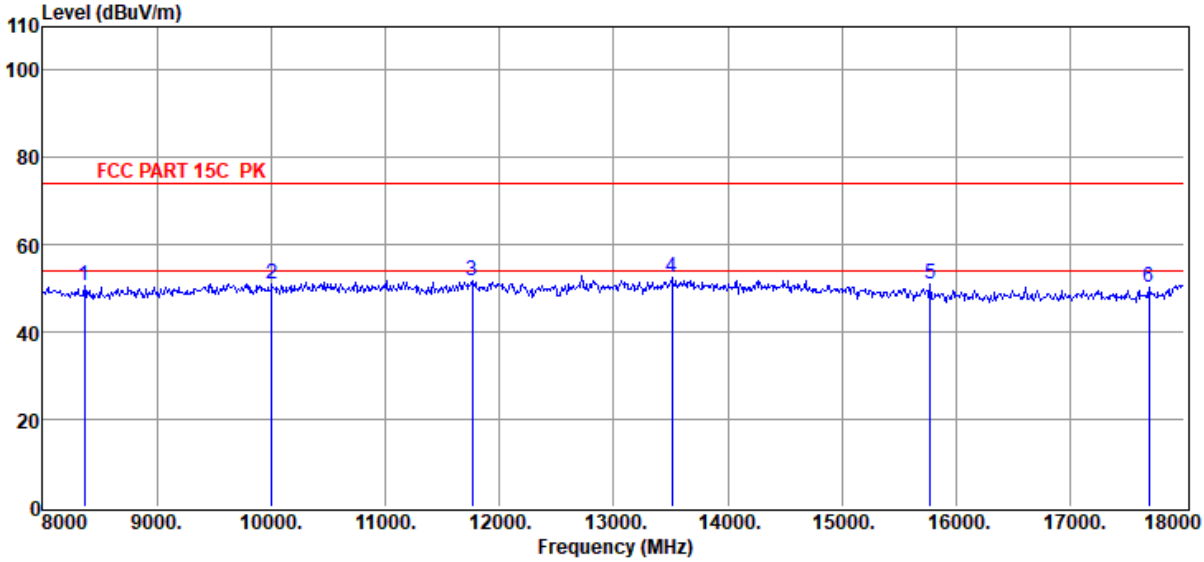
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8490.00	45.76	37.78	39.85	3.22	2.76	49.67	74.00	-24.33	Peak	HORIZONTAL
2	10550.00	46.15	39.03	40.38	3.68	2.81	51.29	74.00	-22.71	Peak	HORIZONTAL
3	12000.00	46.14	39.20	40.10	4.05	2.37	51.66	74.00	-22.34	Peak	HORIZONTAL
4	13810.00	44.48	39.94	39.83	4.32	2.68	51.59	74.00	-22.41	Peak	HORIZONTAL
5	15710.00	44.44	38.42	39.81	4.58	2.54	50.17	74.00	-23.83	Peak	HORIZONTAL
6	17450.00	42.80	39.31	40.37	4.81	3.04	49.59	74.00	-24.41	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11n20 5825		

Data: 115

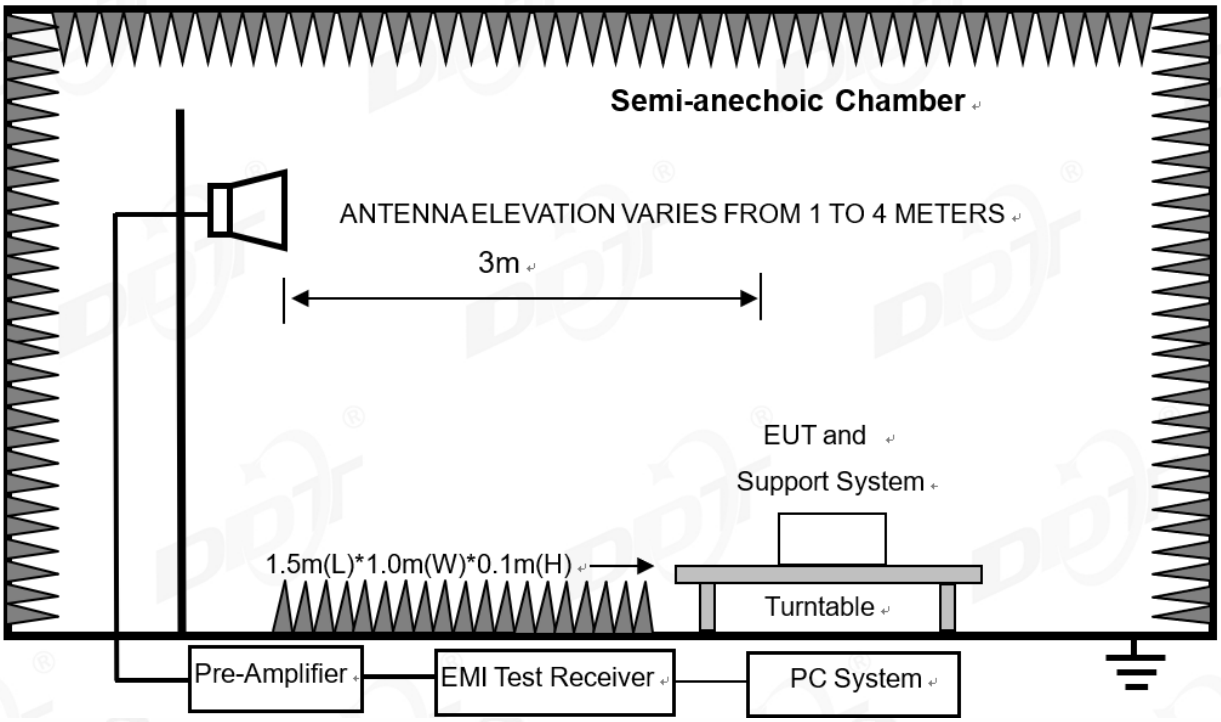


Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	8370.00	46.84	37.59	39.84	3.21	2.75	50.55	74.00	-23.45	Peak	VERTICAL
2	10010.00	46.59	38.41	40.60	3.67	3.04	51.11	74.00	-22.89	Peak	VERTICAL
3	11760.00	46.37	39.10	40.12	4.01	2.43	51.79	74.00	-22.21	Peak	VERTICAL
4	13510.00	45.75	40.00	40.04	4.00	2.67	52.38	74.00	-21.62	Peak	VERTICAL
5	15770.00	45.34	38.31	39.83	4.58	2.55	50.95	74.00	-23.05	Peak	VERTICAL
6	17690.00	42.53	40.58	40.51	4.87	2.85	50.32	74.00	-23.68	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

9. Band Edge Compliance

9.1. Block diagram of test setup



9.2. Limit

For transmitters operating in the 5.15-5.25 GHz and 5.725-5.85 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

-27 dBm/MHz Limit=95.2+EIRP[dBm]=95.2-27=68.2 dBμV/m

9.3. Test Procedure

Same with clause 8.3 except change investigated frequency range from 5.15-5.25 GHz, 5.725-5.85 GHz.

Remark: All restriction band have been tested, and only the worst case is shown in report.

9.4. Test result

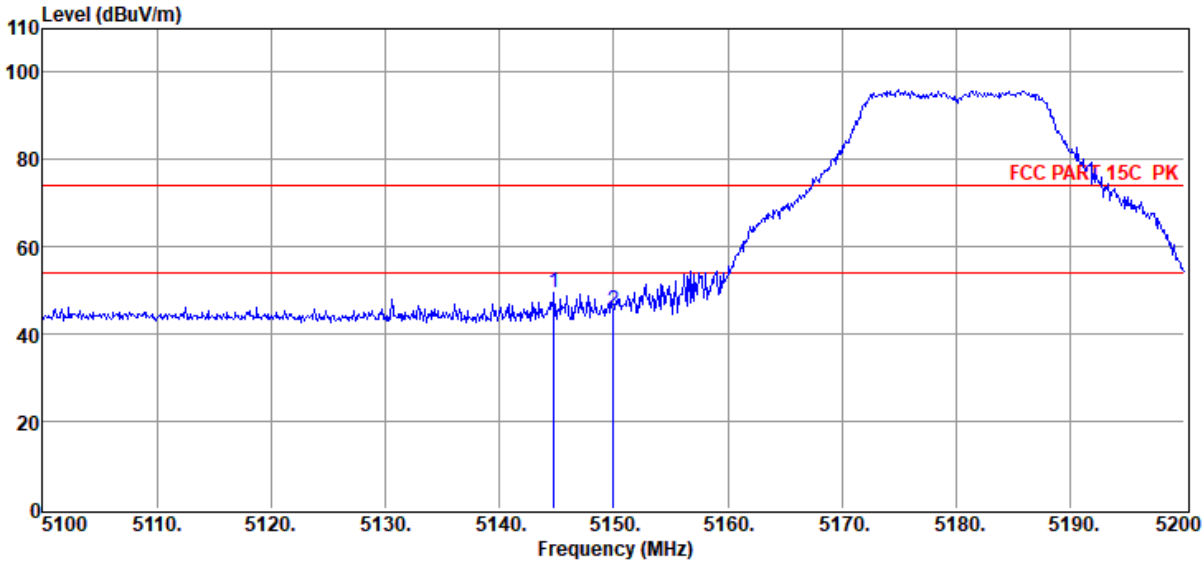
Pass. (See below detailed test result)

Note: As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11A 5180		

Data: 116



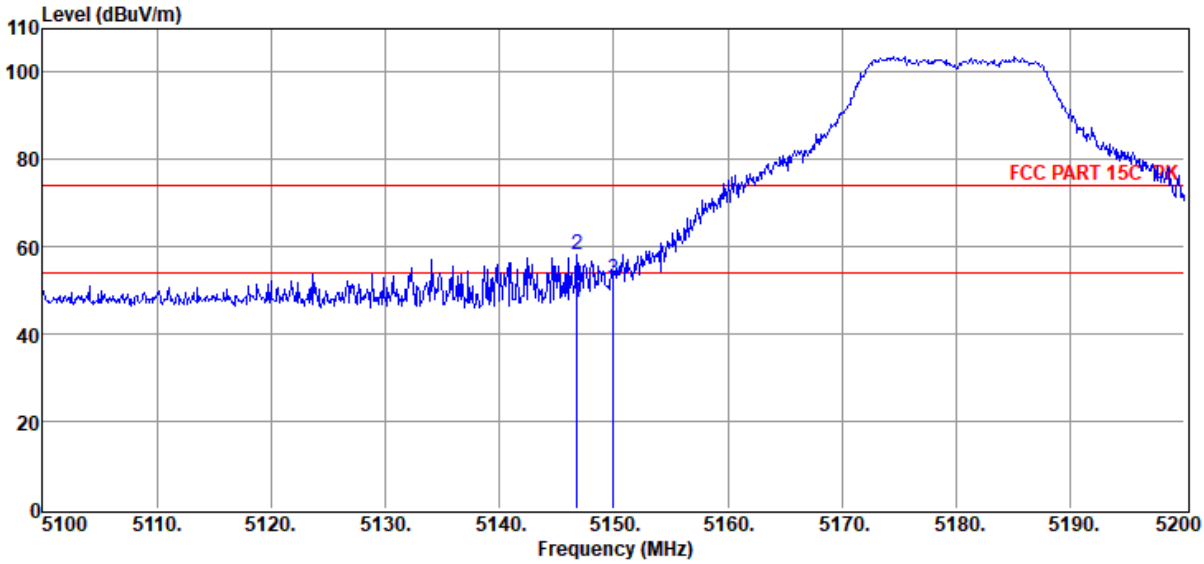
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5144.80	53.52	33.01	40.41	2.55	0.94	49.61	74.00	-24.39	Peak	VERTICAL
2	5150.00	49.37	33.01	40.42	2.55	0.94	45.45	74.00	-28.55	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11A 5180		

Data: 117



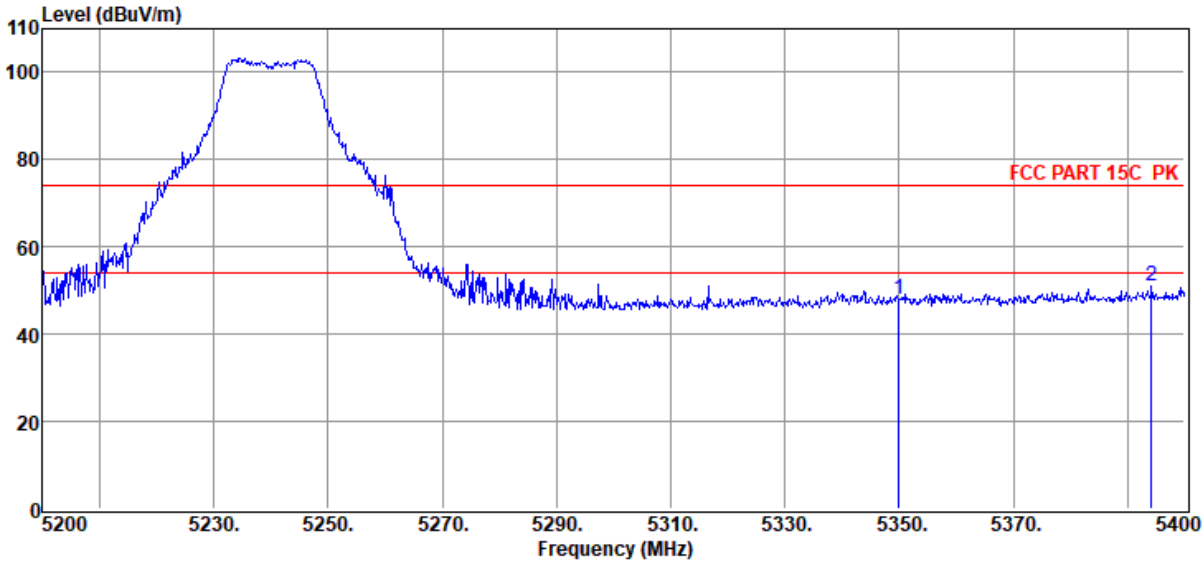
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5146.80	51.33	33.01	40.41	2.55	0.94	47.42	54.00	-6.58	Average	HORIZONTAL
2	5146.80	61.94	33.01	40.41	2.55	0.94	58.03	74.00	-15.97	Peak	HORIZONTAL
3	5150.00	56.64	33.01	40.42	2.55	0.94	52.72	74.00	-21.28	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11A 5240		

Data: 118



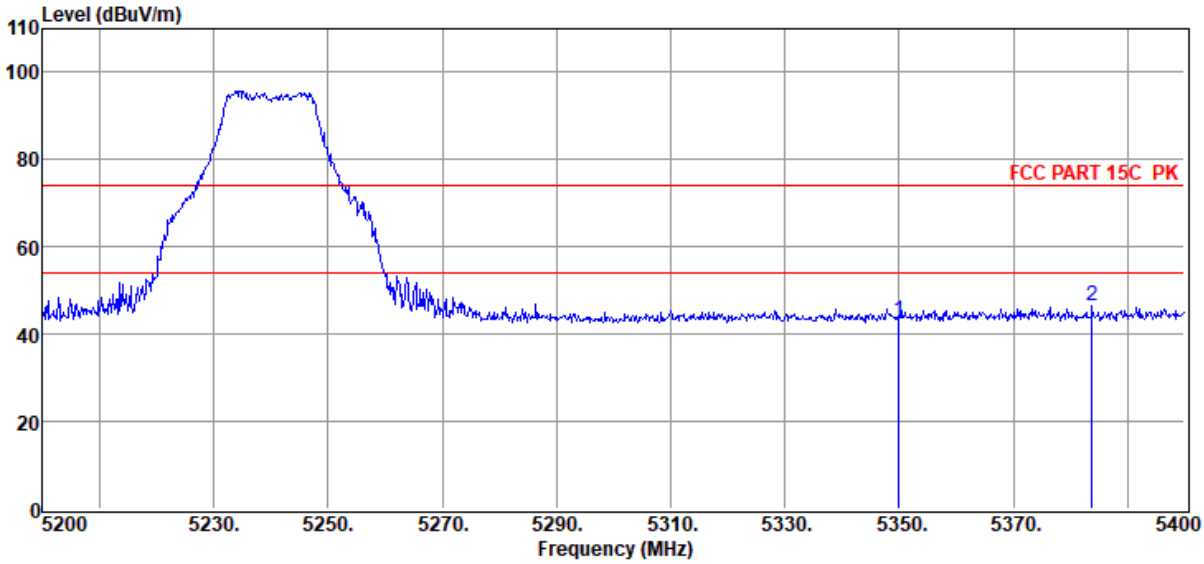
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	52.16	32.89	40.44	2.56	0.99	48.16	74.00	-25.84	Peak	HORIZONTAL
2	5394.20	54.89	32.86	40.44	2.56	1.00	50.87	74.00	-23.13	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11A 5240		

Data: 119



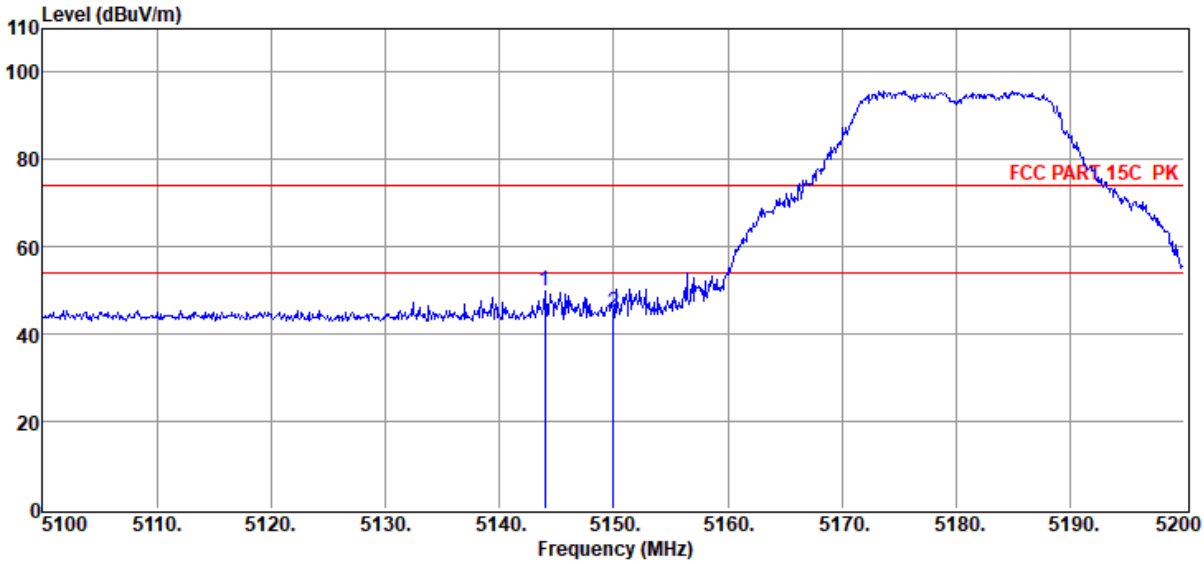
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	47.09	32.89	40.44	2.56	0.99	43.09	74.00	-30.91	Peak	VERTICAL
2	5383.80	50.40	32.87	40.44	2.56	1.00	46.39	74.00	-27.61	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11N20 5180		

Data: 120



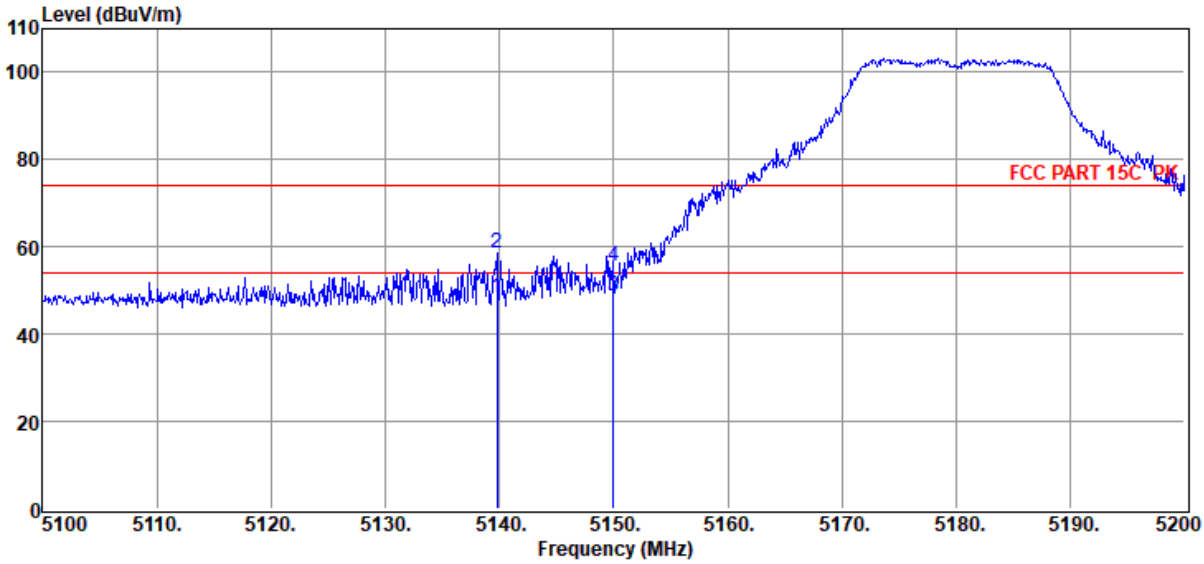
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5144.00	53.78	33.01	40.41	2.55	0.94	49.87	74.00	-24.13	Peak	VERTICAL
2	5150.00	49.04	33.01	40.42	2.55	0.94	45.12	74.00	-28.88	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11N20 5180		

Data: 121



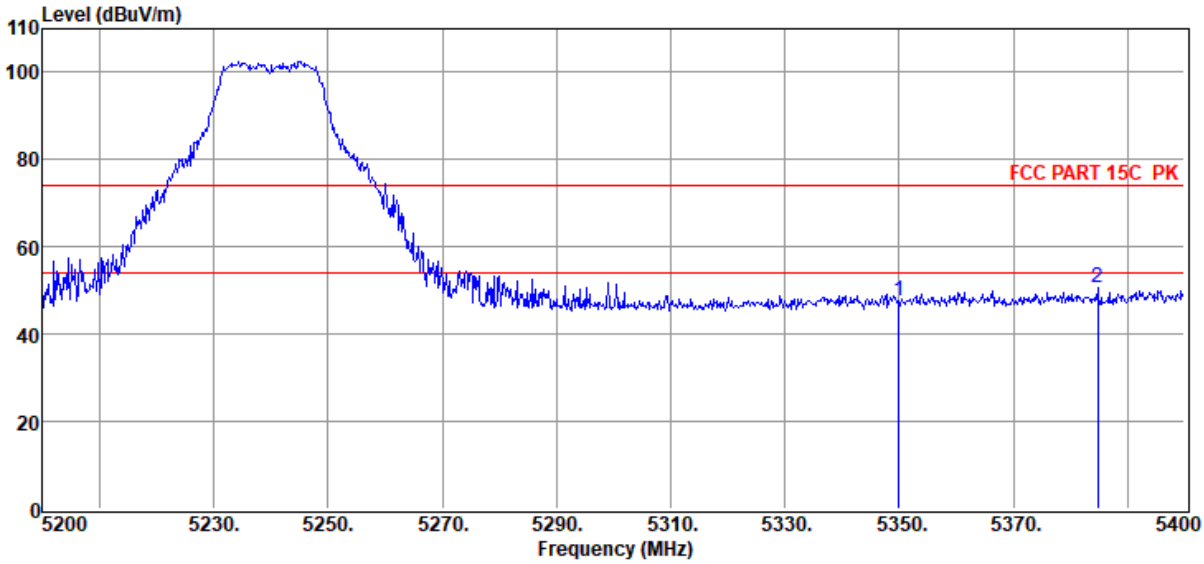
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5139.80	52.21	33.02	40.41	2.55	0.94	48.31	54.00	-5.69	Average	HORIZONTAL
2	5139.80	62.34	33.02	40.41	2.55	0.94	58.44	74.00	-15.56	Peak	HORIZONTAL
3	5150.00	52.52	33.01	40.42	2.55	0.94	48.60	54.00	-5.40	Average	HORIZONTAL
4	5150.00	59.59	33.01	40.42	2.55	0.94	55.67	74.00	-18.33	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11N20 5240		

Data: 122



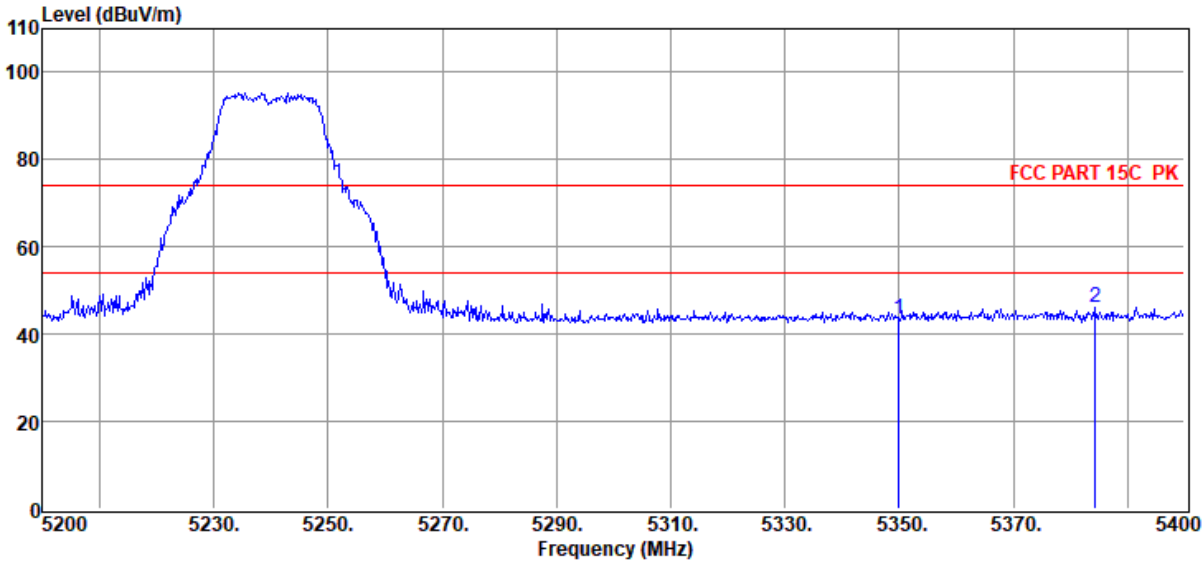
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	51.58	32.89	40.44	2.56	0.99	47.58	74.00	-26.42	Peak	HORIZONTAL
2	5384.80	54.49	32.87	40.44	2.56	1.00	50.48	74.00	-23.52	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11N20 5240		

Data: 123



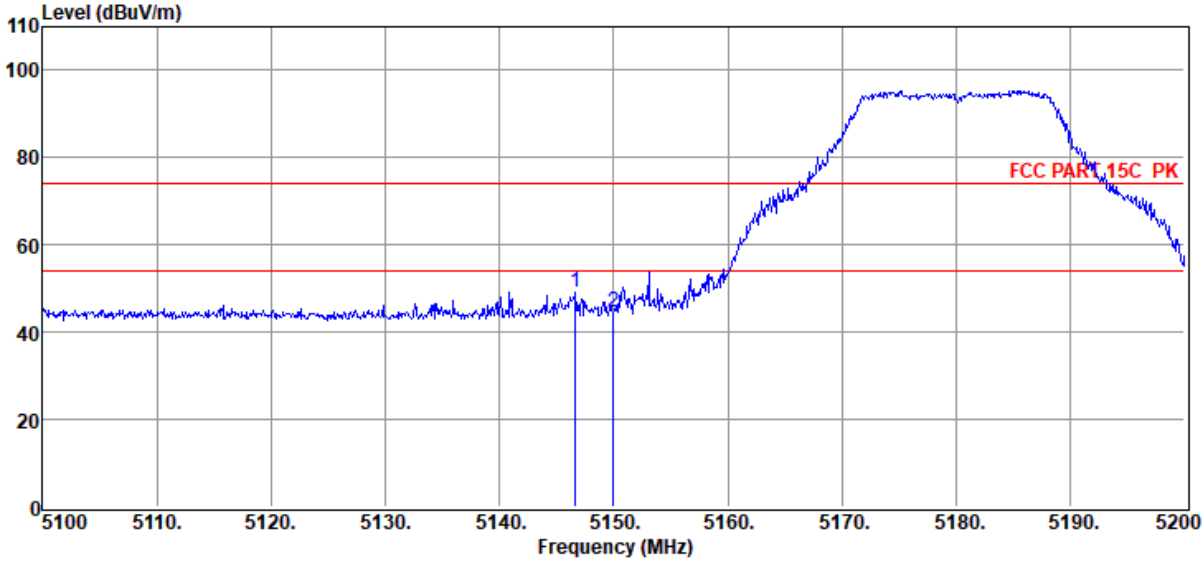
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	47.45	32.89	40.44	2.56	0.99	43.45	74.00	-30.55	Peak	VERTICAL
2	5384.40	50.14	32.87	40.44	2.56	1.00	46.13	74.00	-27.87	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AC20 5180		

Data: 124



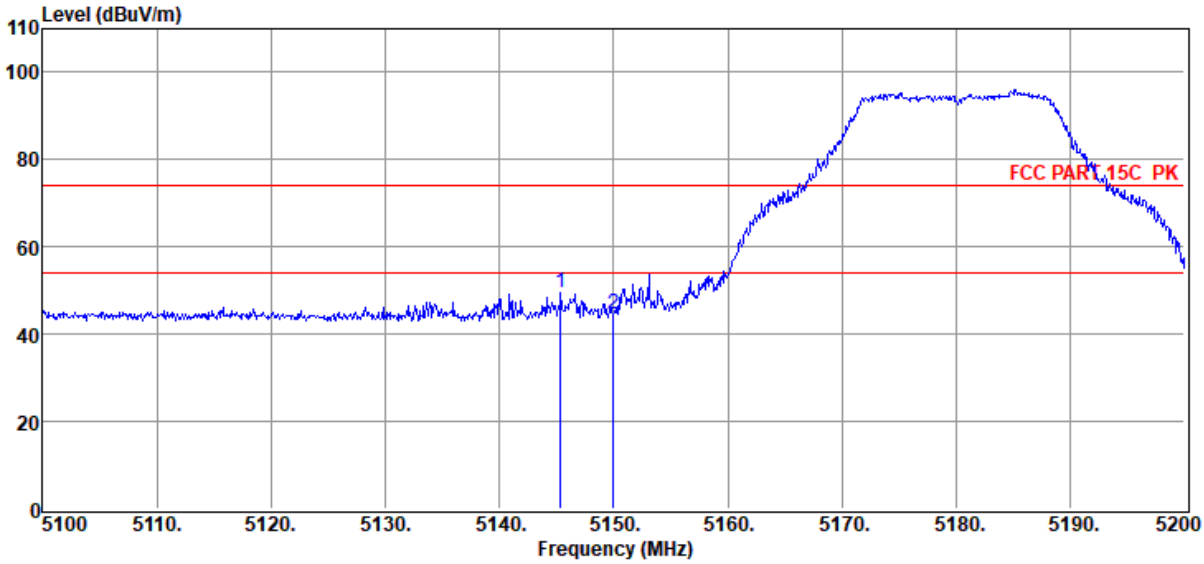
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5146.70	53.03	33.01	40.41	2.55	0.94	49.12	74.00	-24.88	Peak	VERTICAL
2	5150.00	48.51	33.01	40.42	2.55	0.94	44.59	74.00	-29.41	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AC20 5180		

Data: 125



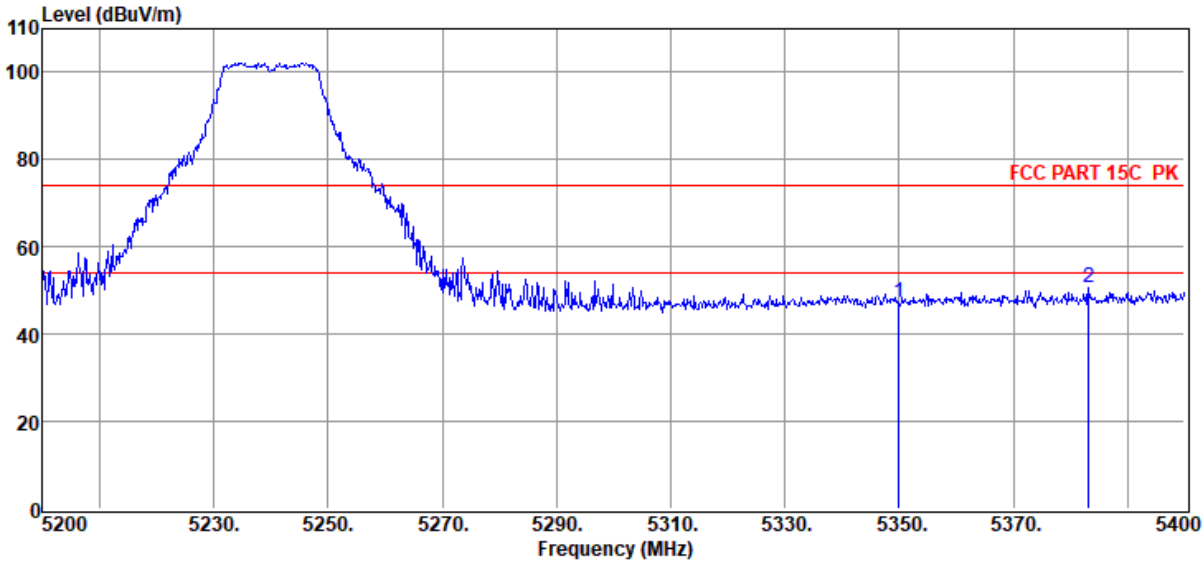
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5145.40	53.34	33.01	40.41	2.55	0.94	49.43	74.00	-24.57	Peak	HORIZONTAL
2	5150.00	48.51	33.01	40.42	2.55	0.94	44.59	74.00	-29.41	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AC20 5240		

Data: 126



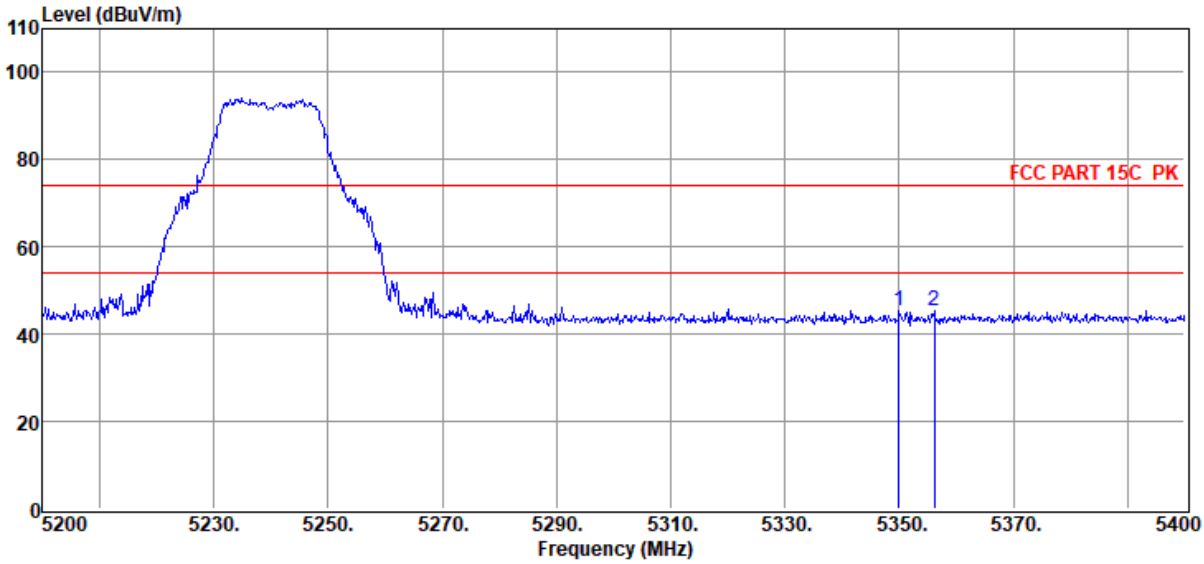
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	51.40	32.89	40.44	2.56	0.99	47.40	74.00	-26.60	Peak	HORIZONTAL
2	5383.20	54.52	32.87	40.44	2.56	1.00	50.51	74.00	-23.49	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AC20 5240		

Data: 127



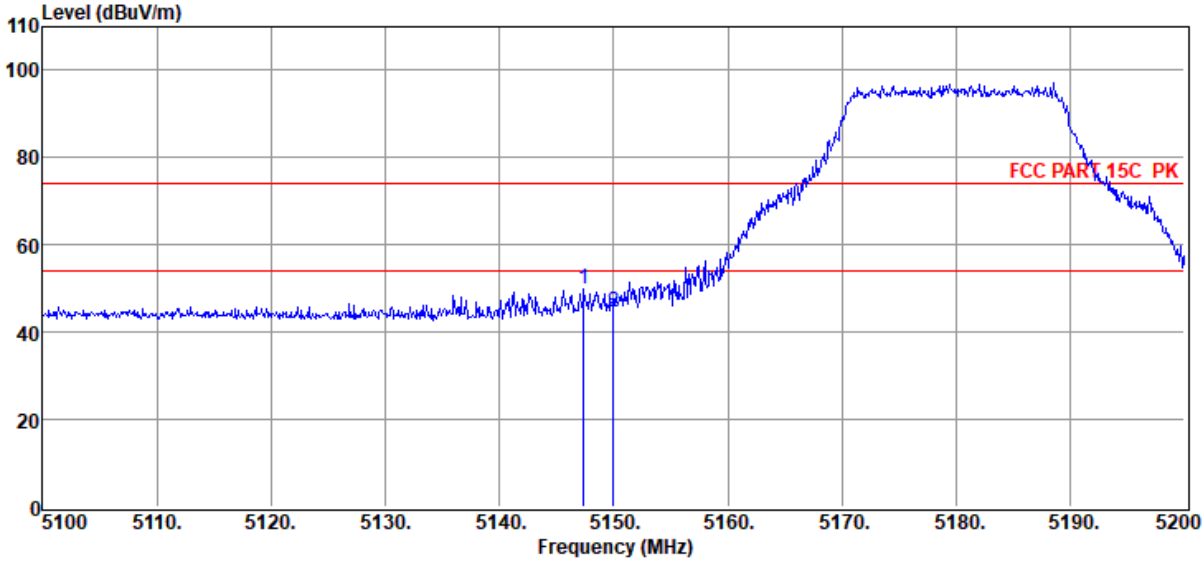
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	49.38	32.89	40.44	2.56	0.99	45.38	74.00	-28.62	Peak	VERTICAL
2	5356.20	49.52	32.89	40.44	2.56	0.99	45.52	74.00	-28.48	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AX20 5180		

Data: 128



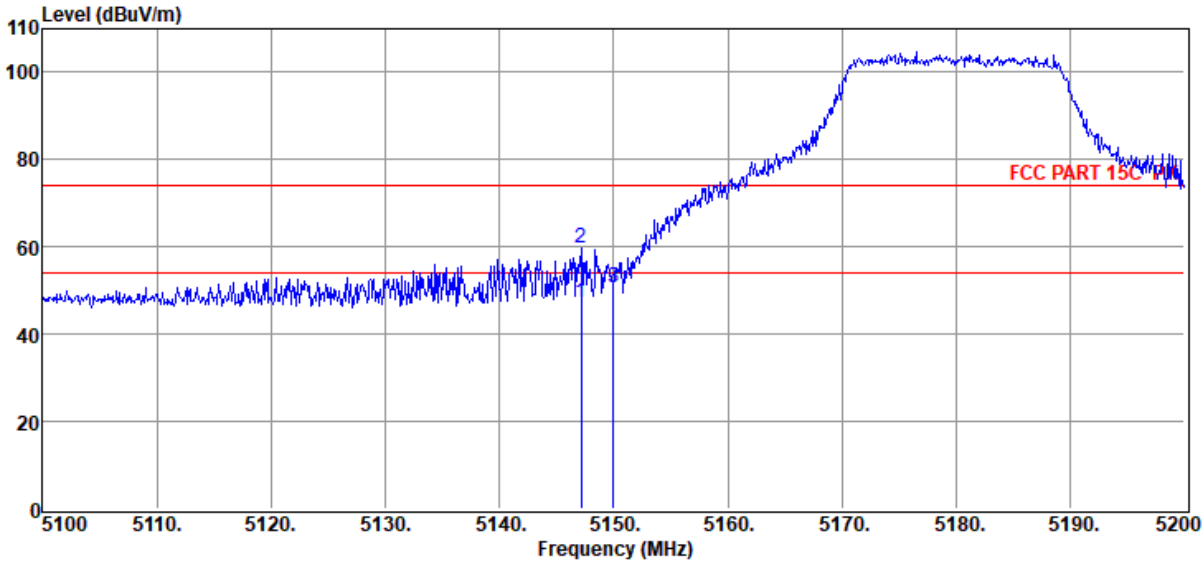
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5147.40	53.72	33.01	40.41	2.55	0.94	49.81	74.00	-24.19	Peak	VERTICAL
2	5150.00	48.45	33.01	40.42	2.55	0.94	44.53	74.00	-29.47	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AX20 5180		

Data: 129



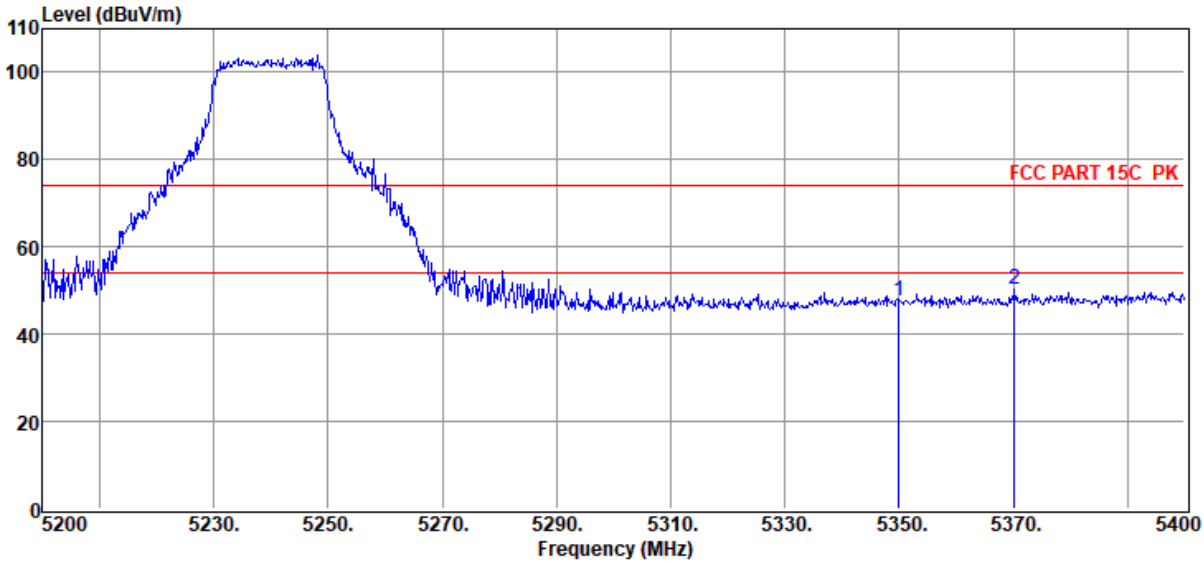
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5147.20	51.22	33.01	40.41	2.55	0.94	47.31	54.00	-6.69	Average	HORIZONTAL
2	5147.20	63.58	33.01	40.41	2.55	0.94	59.67	74.00	-14.33	Peak	HORIZONTAL
3	5150.00	54.52	33.01	40.42	2.55	0.94	50.60	74.00	-23.40	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AX20 5240		

Data: 130



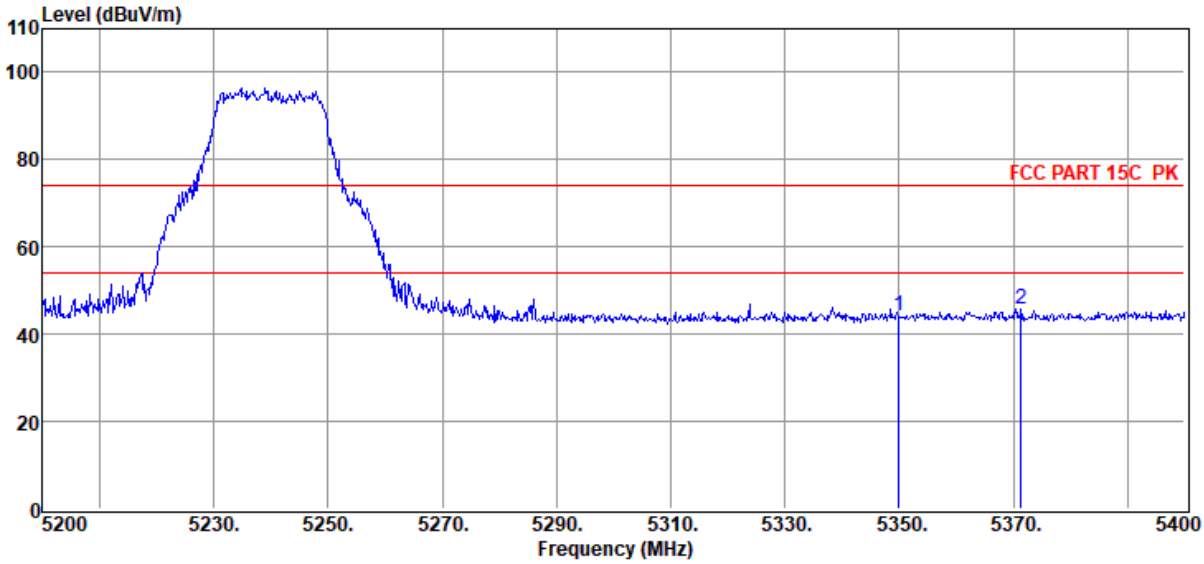
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	51.61	32.89	40.44	2.56	0.99	47.61	74.00	-26.39	Peak	HORIZONTAL
2	5370.20	54.46	32.88	40.44	2.56	1.00	50.46	74.00	-23.54	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-07	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AX20 5240		

Data: 131



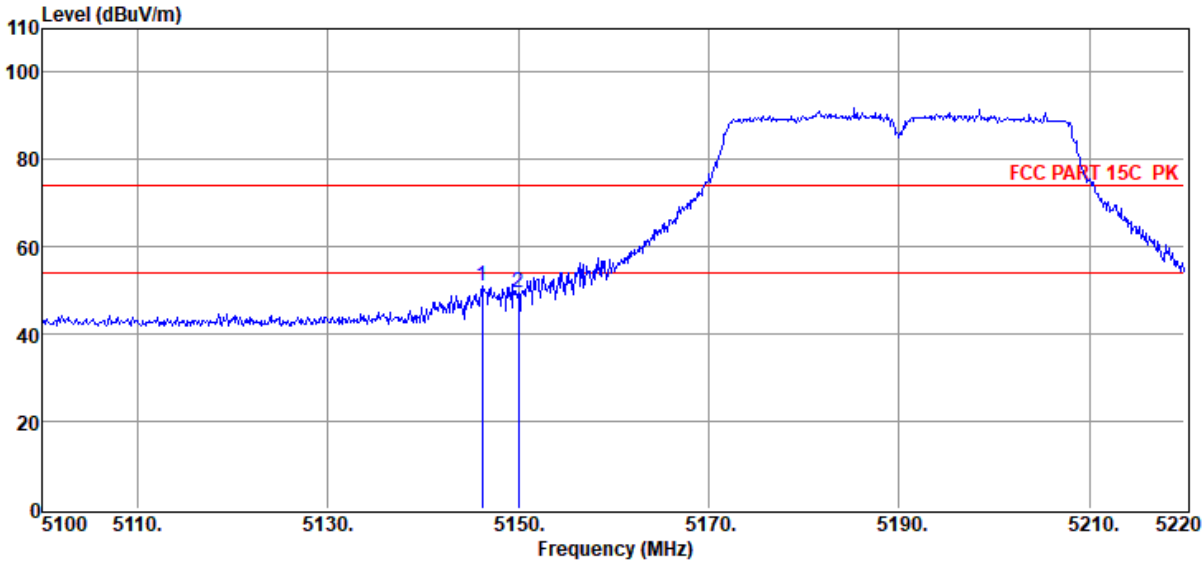
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	48.13	32.89	40.44	2.56	0.99	44.13	74.00	-29.87	Peak	VERTICAL
2	5371.40	49.66	32.88	40.44	2.56	1.00	45.66	74.00	-28.34	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11N40 5190		

Data: 132



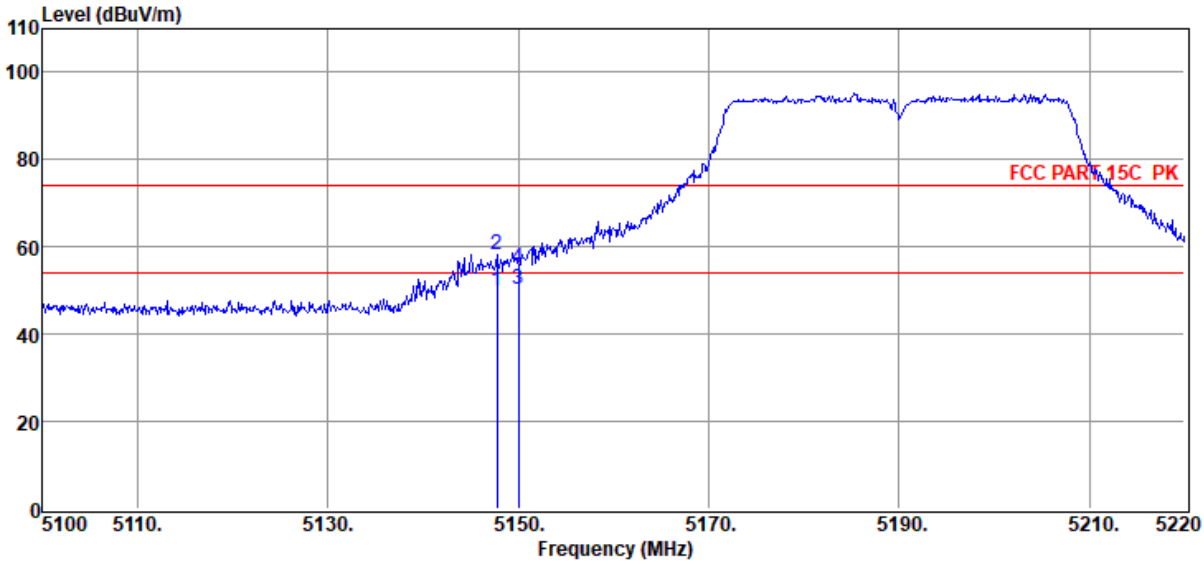
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5146.20	54.95	33.01	40.41	2.55	0.94	51.04	74.00	-22.96	Peak	VERTICAL
2	5150.04	53.27	33.01	40.42	2.55	0.94	49.35	74.00	-24.65	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11N40 5190		

Data: 133



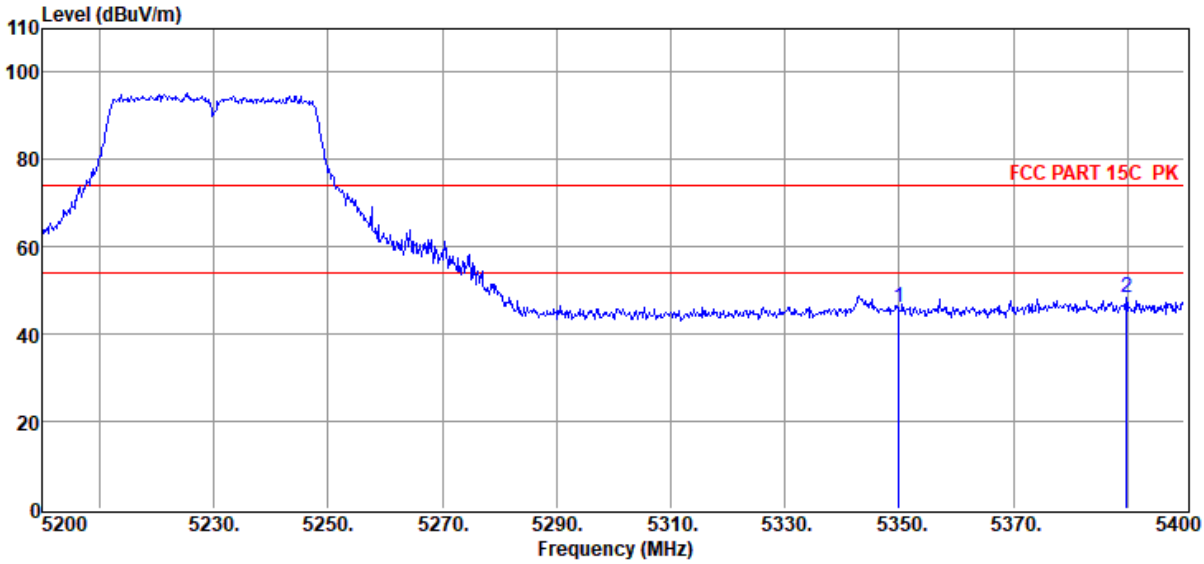
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5147.76	53.74	33.01	40.41	2.55	0.94	49.83	54.00	-4.17	Average	HORIZONTAL
2	5147.76	62.27	33.01	40.41	2.55	0.94	58.36	74.00	-15.64	Peak	HORIZONTAL
3	5150.04	54.12	33.01	40.42	2.55	0.94	50.20	54.00	-3.80	Average	HORIZONTAL
4	5150.04	59.00	33.01	40.42	2.55	0.94	55.08	74.00	-18.92	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11N40 5230 power:9 ofst:-8		

Data: 134



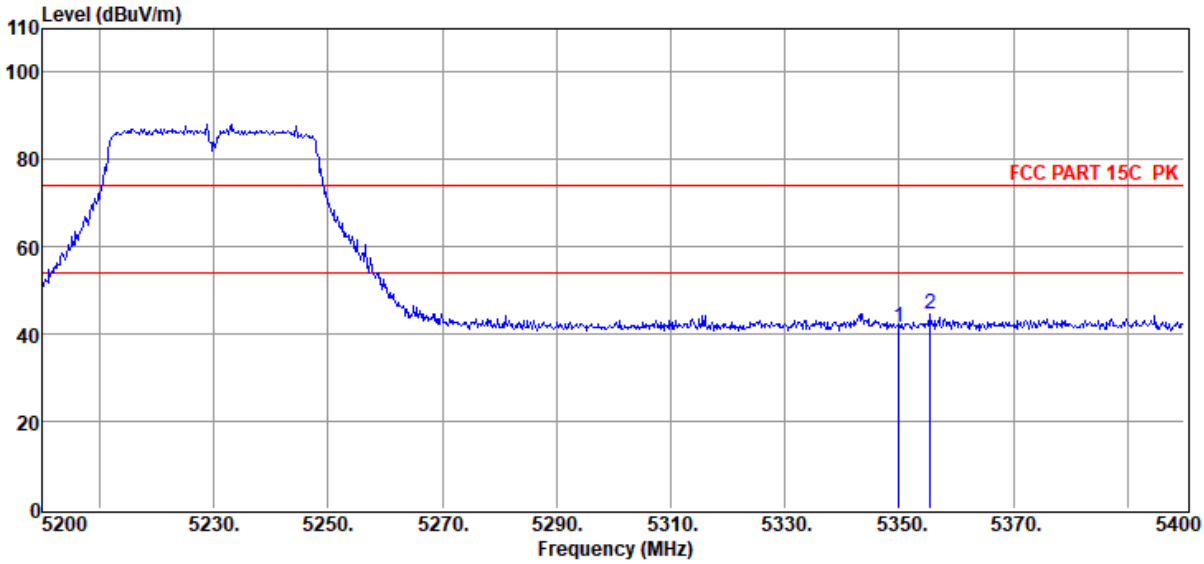
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	50.20	32.89	40.44	2.56	0.99	46.20	74.00	-27.80	Peak	HORIZONTAL
2	5389.80	52.24	32.87	40.44	2.56	1.00	48.23	74.00	-25.77	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11N40 5230 power:9 ofst:-8		

Data: 135



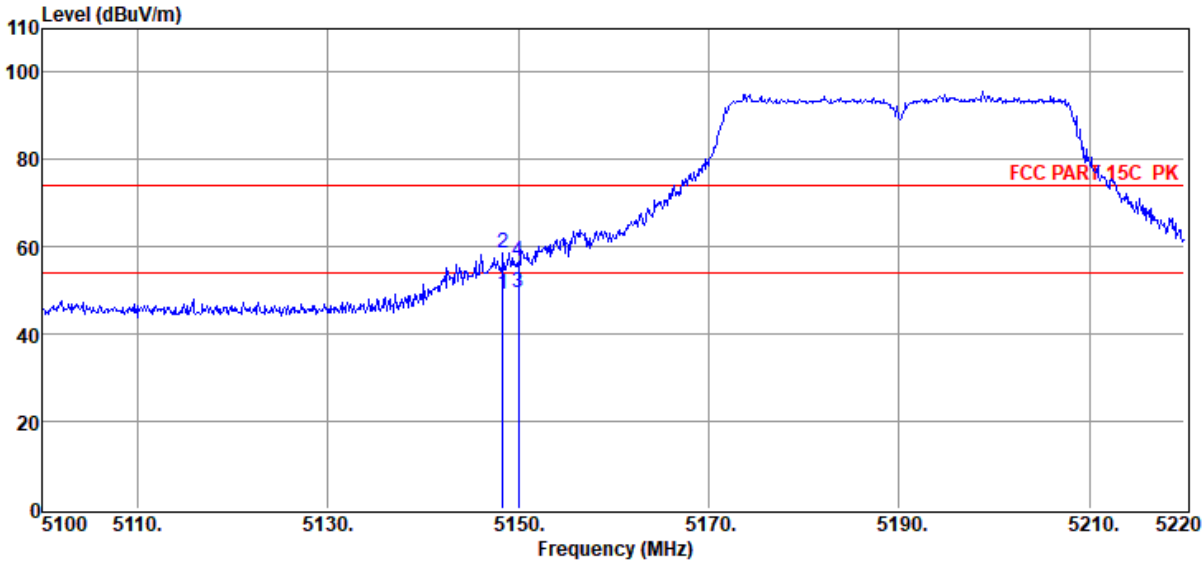
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	45.73	32.89	40.44	2.56	0.99	41.73	74.00	-32.27	Peak	VERTICAL
2	5355.40	48.51	32.89	40.44	2.56	0.99	44.51	74.00	-29.49	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AC40 5190 power:9 ofst:-8		

Data: 138



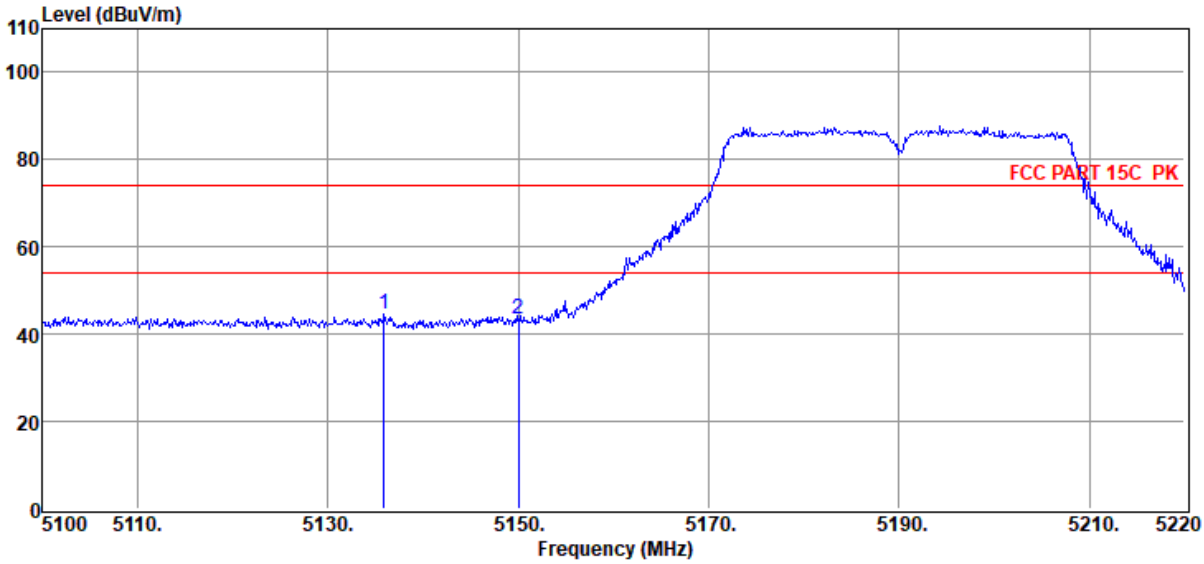
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5148.36	53.21	33.01	40.41	2.55	0.94	49.30	54.00	-4.70	Average	HORIZONTAL
2	5148.36	62.62	33.01	40.41	2.55	0.94	58.71	74.00	-15.29	Peak	HORIZONTAL
3	5150.04	53.35	33.01	40.42	2.55	0.94	49.43	54.00	-4.57	Average	HORIZONTAL
4	5150.04	60.54	33.01	40.42	2.55	0.94	56.62	74.00	-17.38	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AC40 5190 power:9 ofst:-8		

Data: 139



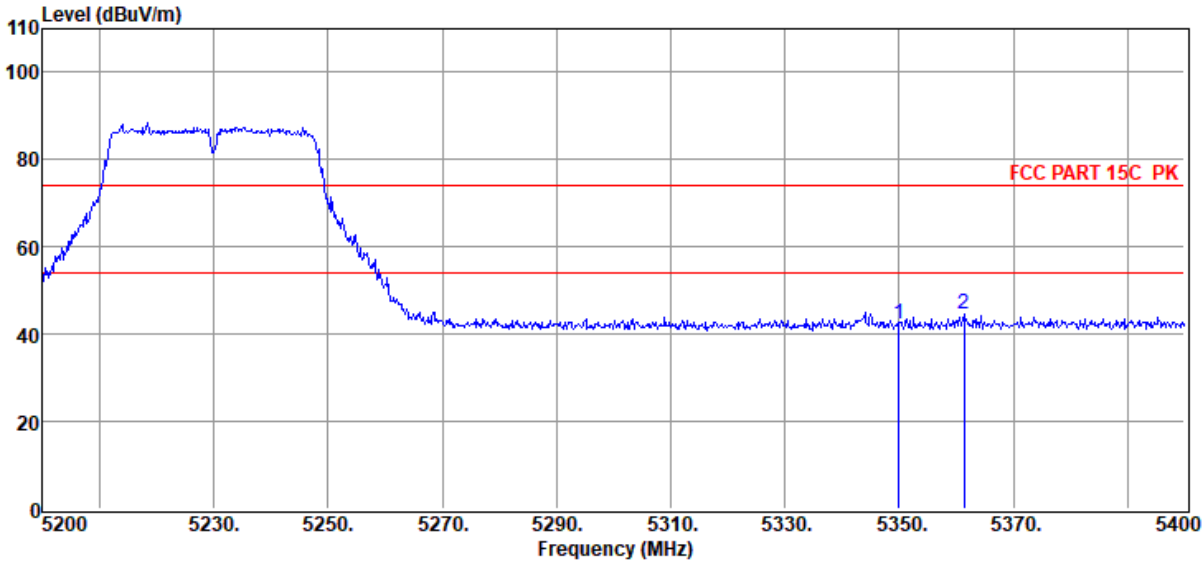
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5135.88	48.41	33.02	40.41	2.55	0.94	44.51	74.00	-29.49	Peak	VERTICAL
2	5150.04	47.54	33.01	40.42	2.55	0.94	43.62	74.00	-30.38	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AC40 5230 power:9 ofst:-8		

Data: 136



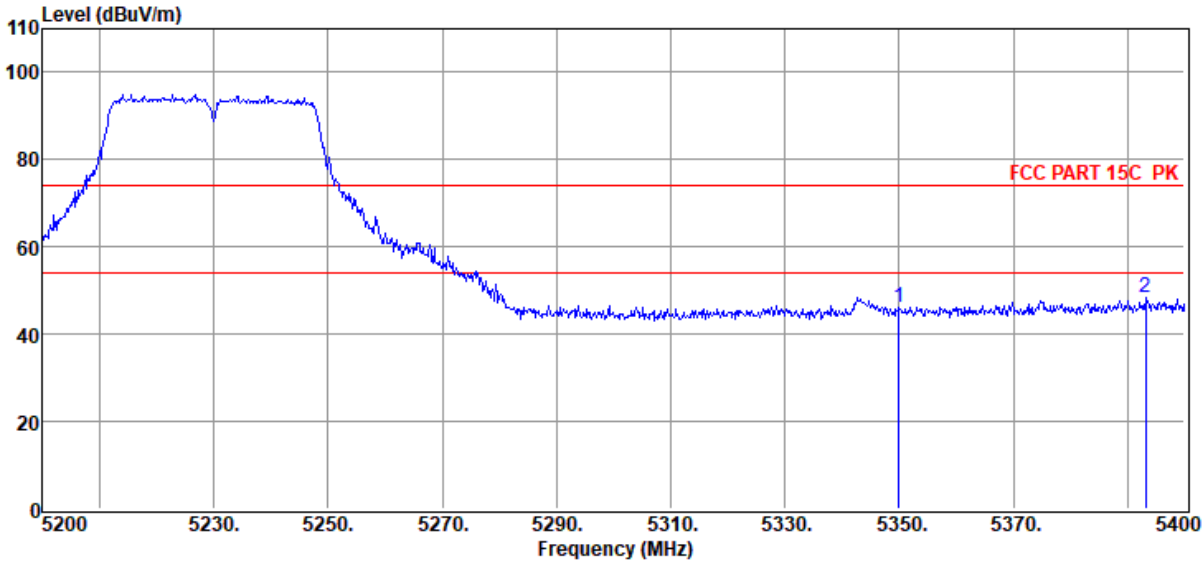
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	46.27	32.89	40.44	2.56	0.99	42.27	74.00	-31.73	Peak	VERTICAL
2	5361.40	48.44	32.88	40.44	2.56	0.99	44.43	74.00	-29.57	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AC40 5230 power:9 ofst:-8		

Data: 137



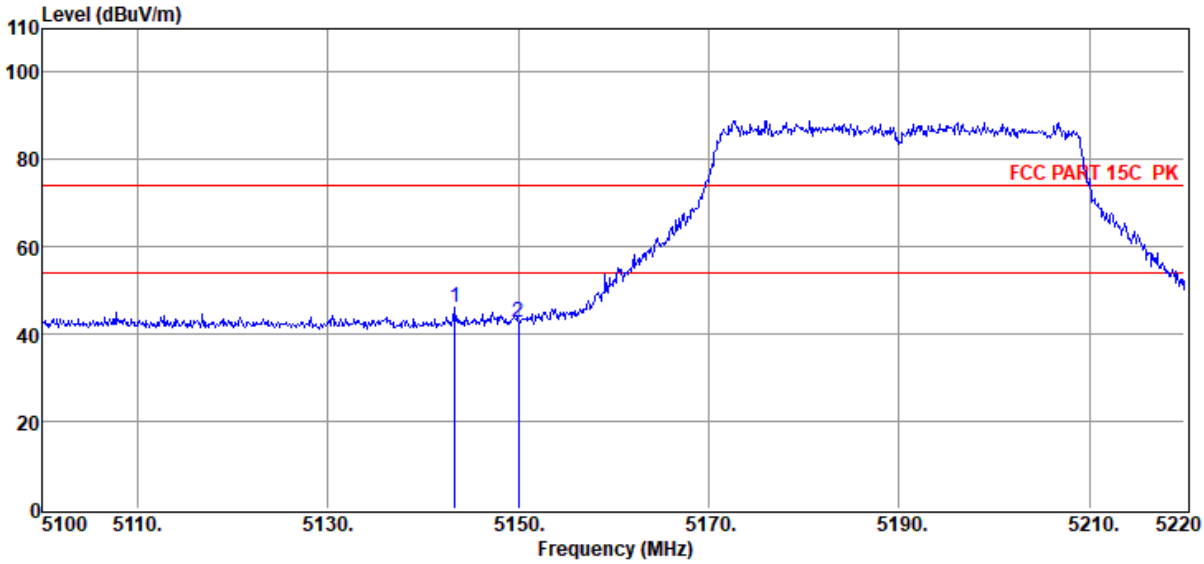
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	50.12	32.89	40.44	2.56	0.99	46.12	74.00	-27.88	Peak	HORIZONTAL
2	5393.20	52.42	32.86	40.44	2.56	1.00	48.40	74.00	-25.60	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AX40 5190 power:9 ofst:-8		

Data: 140



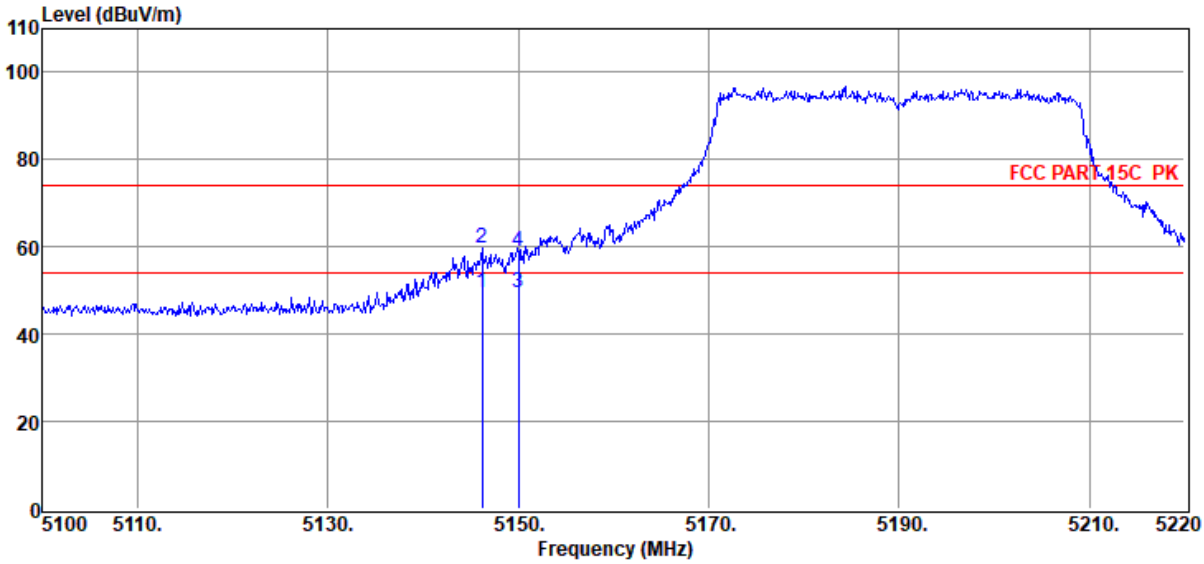
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5143.32	49.97	33.01	40.41	2.55	0.94	46.06	74.00	-27.94	Peak	VERTICAL
2	5150.04	46.80	33.01	40.42	2.55	0.94	42.88	74.00	-31.12	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AX40 5190 power:9 ofst:-8		

Data: 141



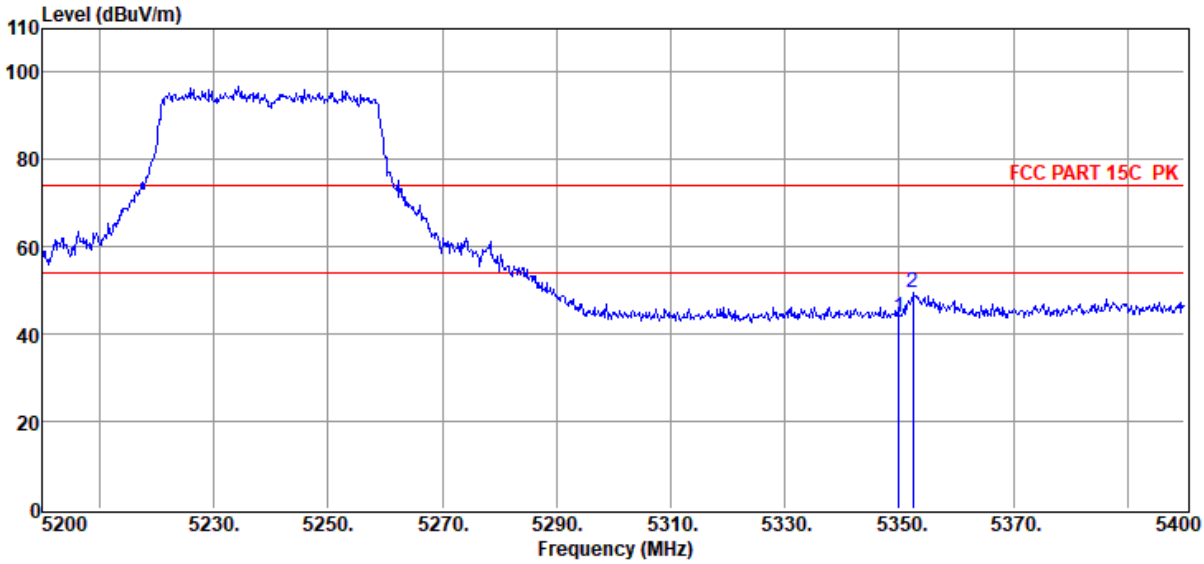
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5146.20	53.61	33.01	40.41	2.55	0.94	49.70	54.00	-4.30	Average	HORIZONTAL
2	5146.20	63.59	33.01	40.41	2.55	0.94	59.68	74.00	-14.32	Peak	HORIZONTAL
3	5150.04	53.27	33.01	40.42	2.55	0.94	49.35	54.00	-4.65	Average	HORIZONTAL
4	5150.04	63.05	33.01	40.42	2.55	0.94	59.13	74.00	-14.87	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/HORIZONTAL
Memo	: 11AX40 5230 power:9 ofst:-8		

Data: 142



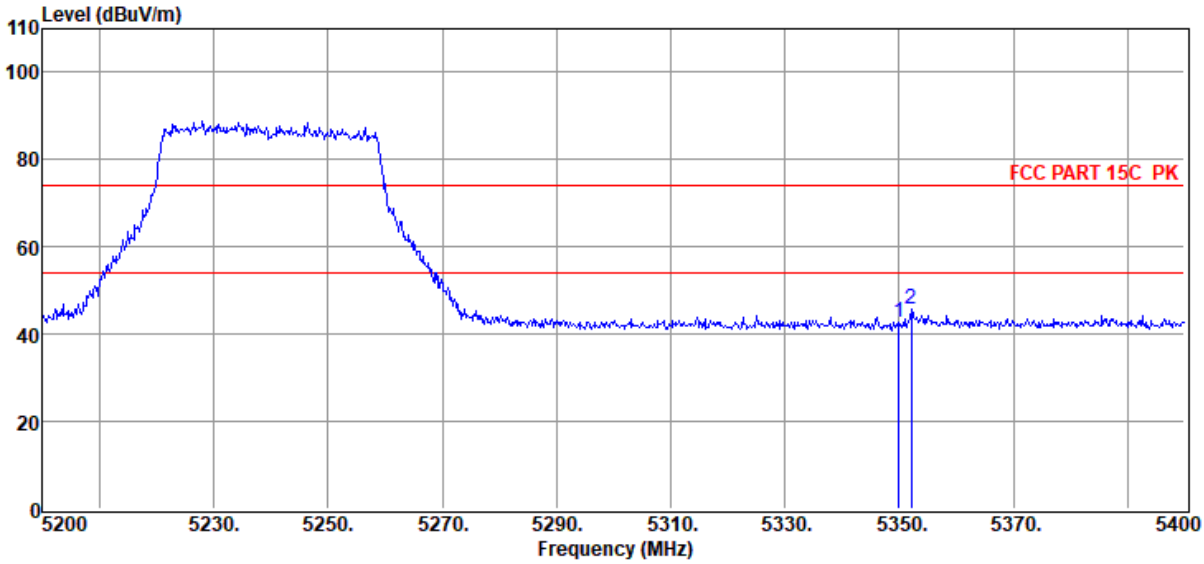
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	47.93	32.89	40.44	2.56	0.99	43.93	74.00	-30.07	Peak	HORIZONTAL
2	5352.40	53.61	32.89	40.44	2.56	0.99	49.61	74.00	-24.39	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 3#	D:\E3 6.111\2022 Report Data\Q21121709-2E\FCC ABOVE 1G .EM6	
Test Date	: 2022-04-08	**Tested By**	: Kennys Zhang
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5°C,Humi:55%,Press:100.1kPa	**Antenna/Distance**	: 2021 BBHA 9120D 3#/3m/VERTICAL
Memo	: 11AX40 5230 power:9 ofst:-8		

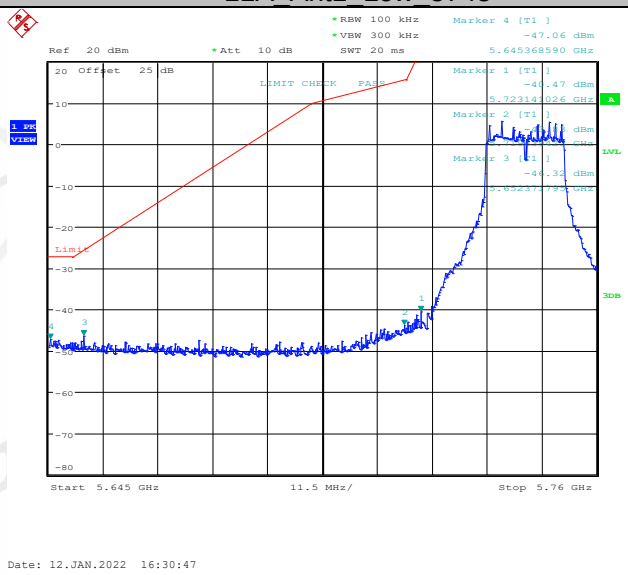
Data: 143



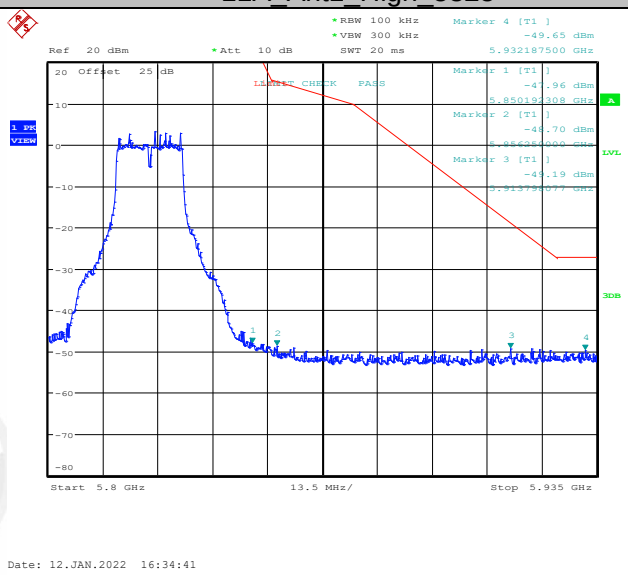
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Filter Factor dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	5350.00	46.78	32.89	40.44	2.56	0.99	42.78	74.00	-31.22	Peak	VERTICAL
2	5352.20	49.82	32.89	40.44	2.56	0.99	45.82	74.00	-28.18	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss + Filter Factor - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

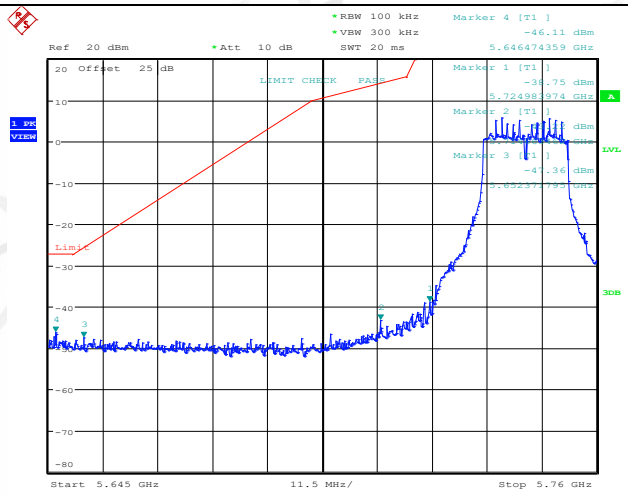
11A_Ant1_Low_5745



11A_Ant1_High_5825



11N20SISO_Ant1_Low_5745



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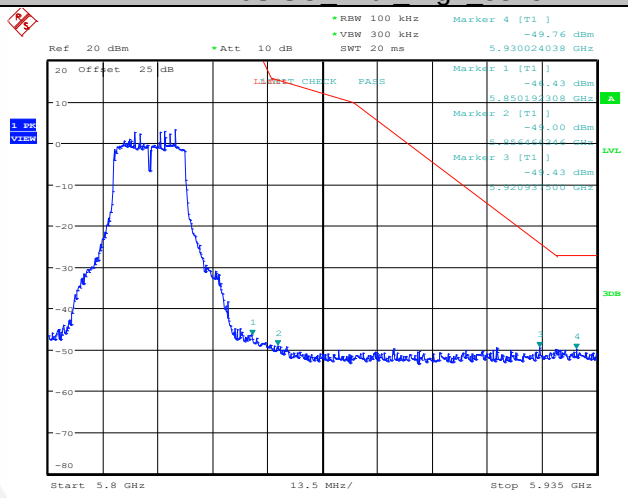

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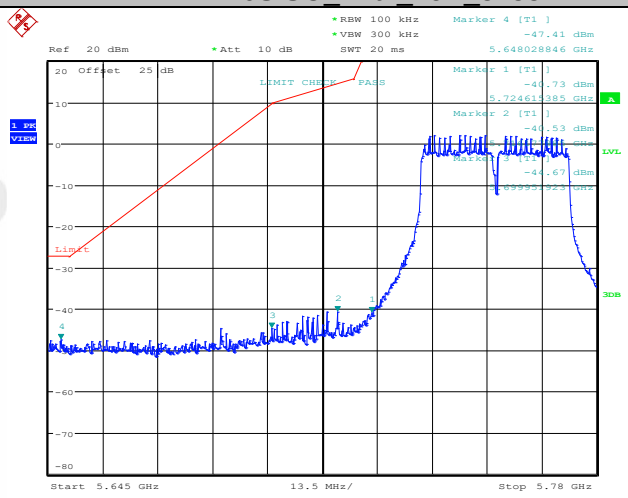

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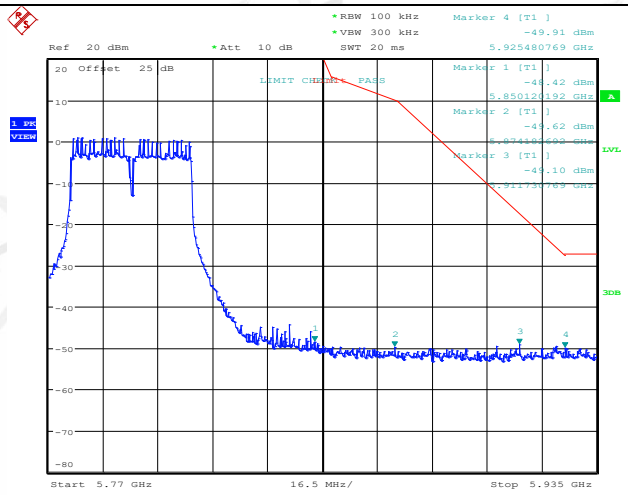

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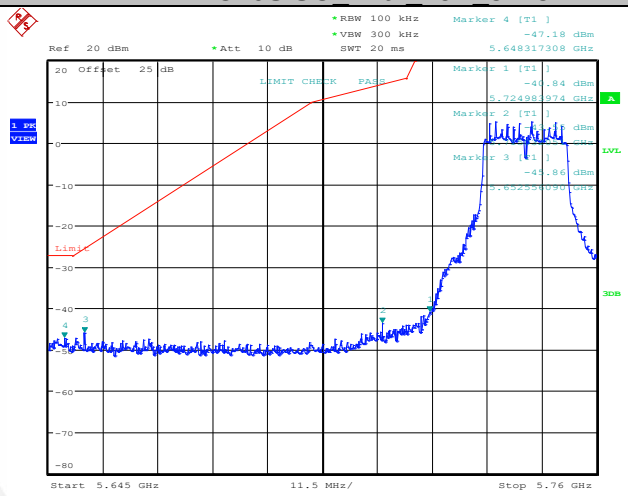

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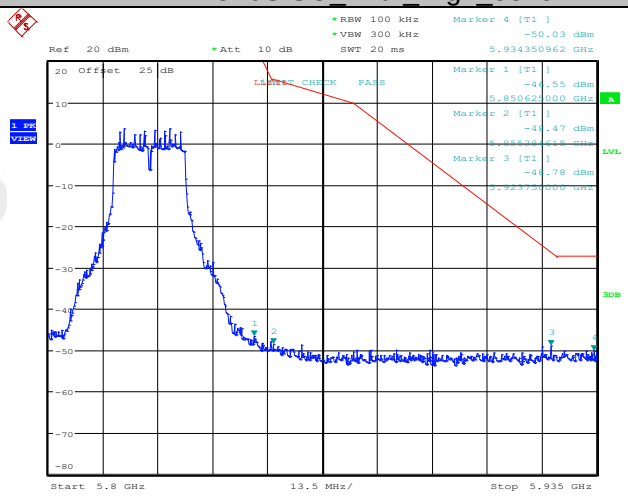

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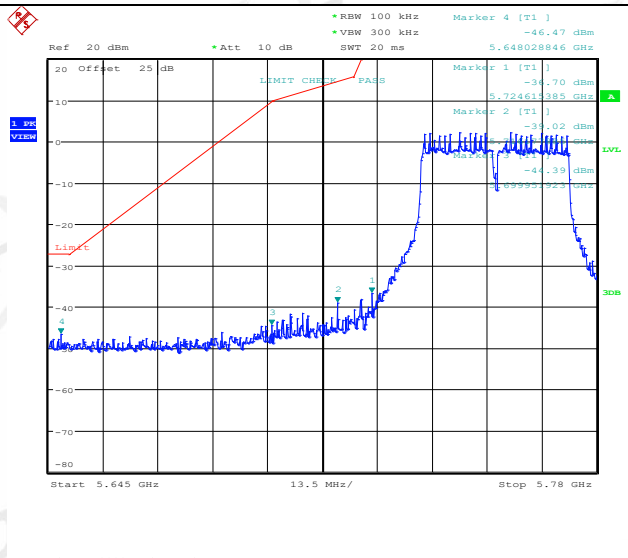

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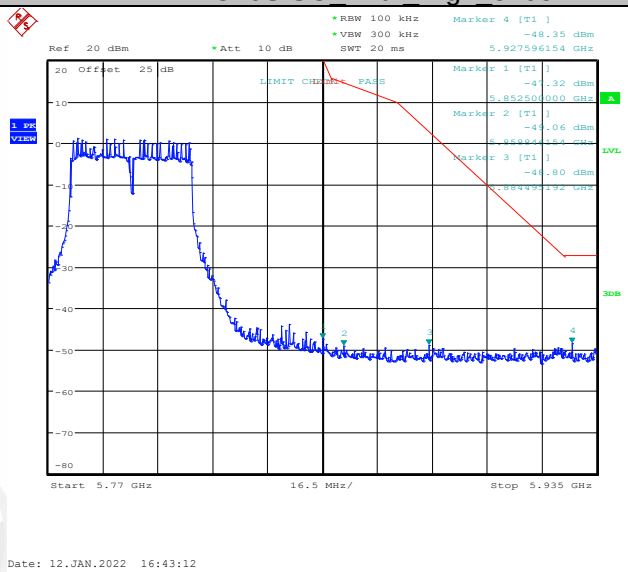
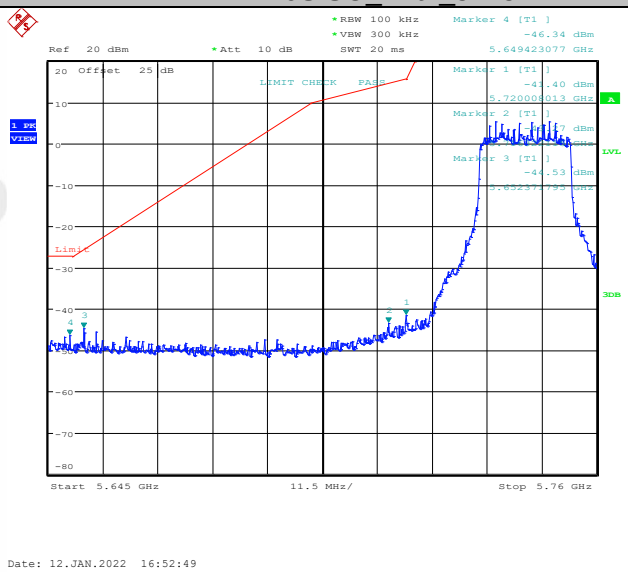


11AX20SISO_Ant1_5745



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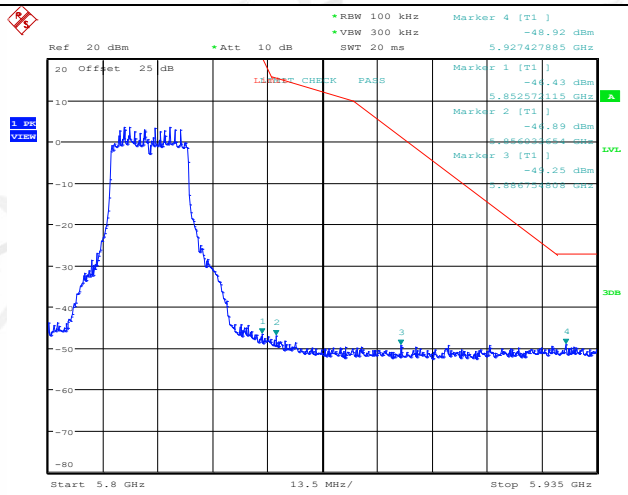

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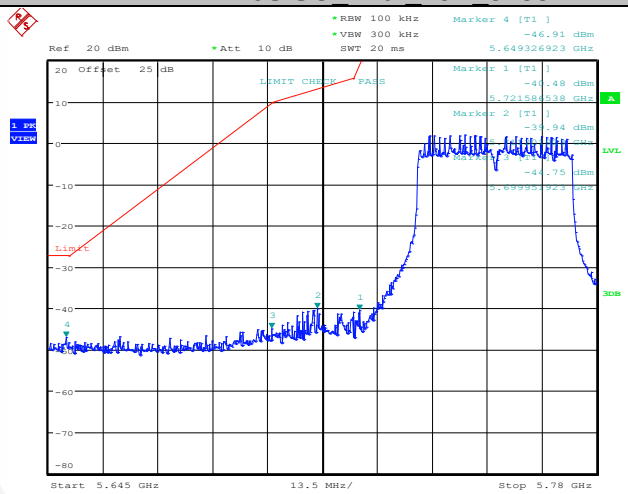

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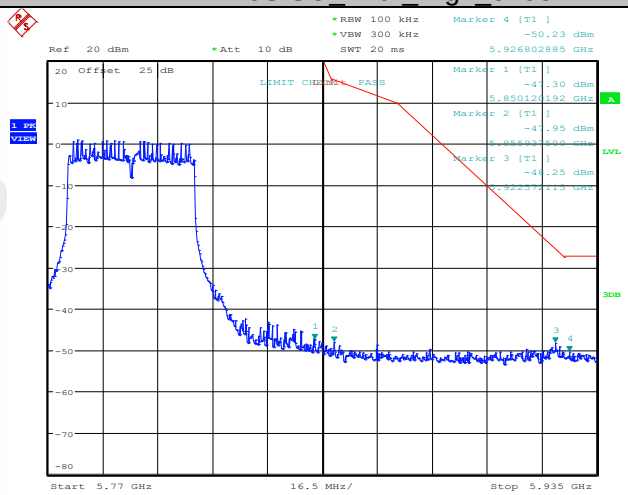
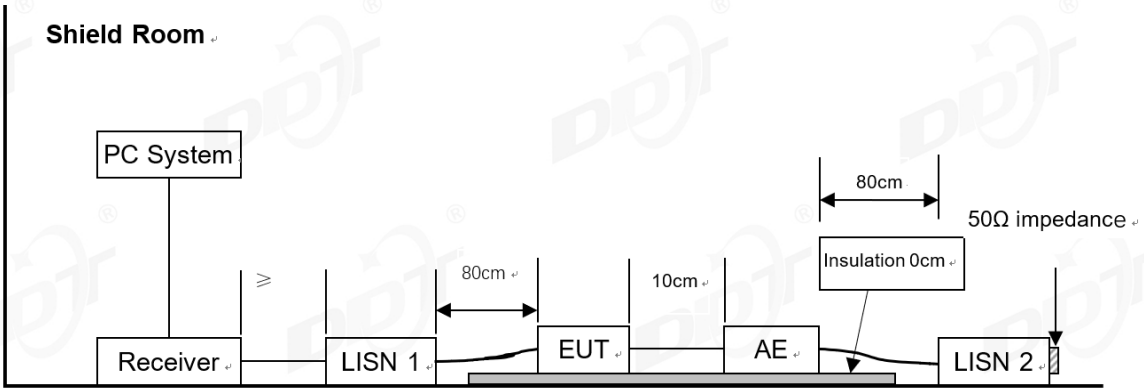


Date: 12.JAN.2022 16:51:51

10. Power Line Conducted Emission

10.1. Block diagram of test setup



10.2. Power Line Conducted Emission Limits (Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.3 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.
EUT and support equipment were set up on the test bench as per the configuration with highest

emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

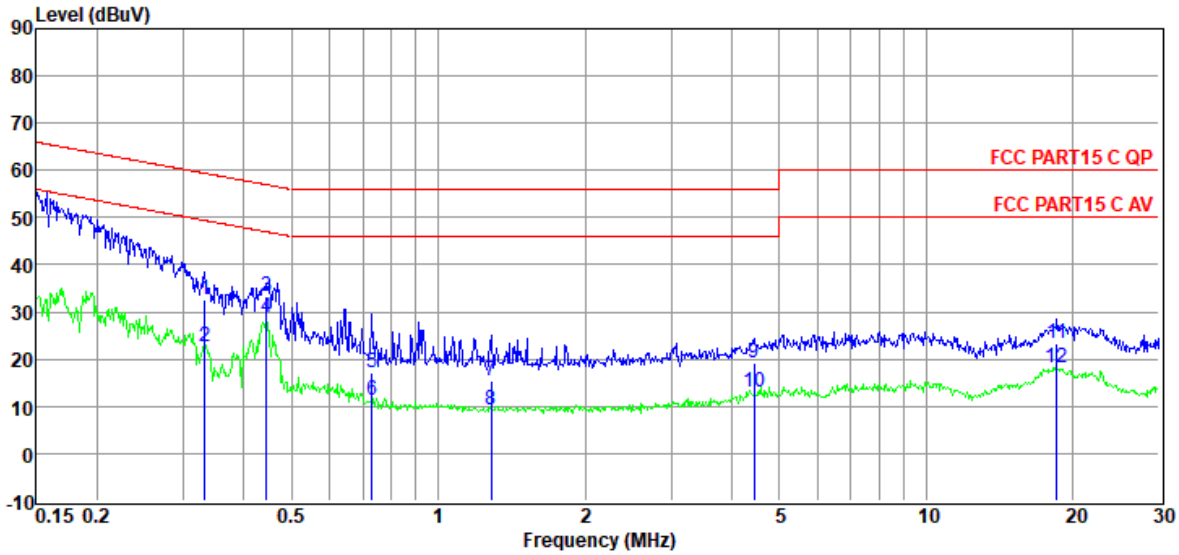
10.4. Test Result

Pass. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: "-----" means peak detection; "-----" means average detection
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worse case (AC 120V/60Hz).

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 1# Shield Room	D:\2022 CE report date\Q21121709-2E Clevershare Hub\FCC.EM6	
Test Date	: 2022-04-21	**Tested By**	: James Gan
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: TX mode
Condition	: TEMP:24.3°C, RH:53.0%, BP:101.0kPa	**LISN**	: 2021 1# ENV216/LINE
Memo	: 5G WIFI		

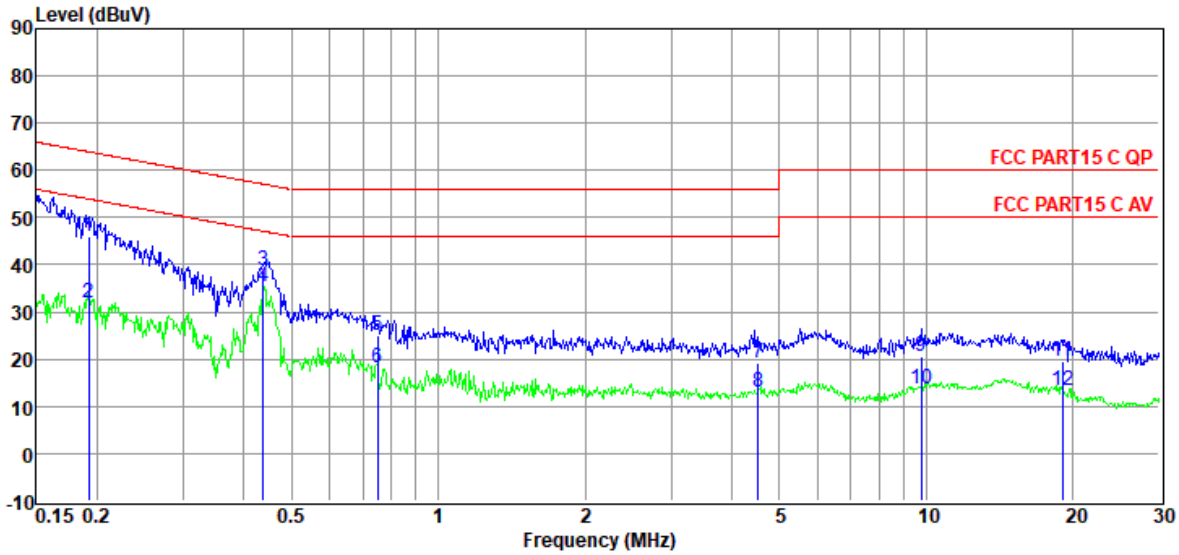


Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.33	12.92	9.69	0.02	9.91	32.54	59.40	-26.86	QP	LINE
2	0.33	3.13	9.69	0.02	9.91	22.75	49.40	-26.65	Average	LINE
3	0.44	13.65	9.63	0.02	9.91	33.21	56.98	-23.77	QP	LINE
4	0.44	9.12	9.63	0.02	9.91	28.68	46.98	-18.30	Average	LINE
5	0.73	-2.40	9.51	0.03	9.91	17.05	56.00	-38.95	QP	LINE
6	0.73	-8.07	9.51	0.03	9.91	11.38	46.00	-34.62	Average	LINE
7	1.28	-4.16	9.56	0.03	9.89	15.32	56.00	-40.68	QP	LINE
8	1.28	-10.36	9.56	0.03	9.89	9.12	46.00	-36.88	Average	LINE
9	4.43	-0.34	9.58	0.06	9.92	19.22	56.00	-36.78	QP	LINE
10	4.43	-6.38	9.58	0.06	9.92	13.18	46.00	-32.82	Average	LINE
11	18.52	3.70	9.65	0.16	9.95	23.46	60.00	-36.54	QP	LINE
12	18.52	-1.52	9.65	0.16	9.95	18.24	50.00	-31.76	Average	LINE

Note:
1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 1# Shield Room	D:\2022 CE report date\Q21121709-2E Clevershare Hub\FCC.EM6	
Test Date	: 2022-04-21	**Tested By**	: James Gan
EUT	: Clevershare Hub	**Model Number**	: Clevershare Hub
Power Supply	: AC 120V/60Hz	**Test Mode**	: TX mode
Condition	: TEMP:24.3°C, RH:53.0%, BP:101.0kPa	**LISN**	: 2021 1# ENV216/NEUTRAL
Memo	: 5G WIFI		



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.19	26.15	9.80	0.01	9.92	45.88	63.93	-18.05	QP	NEUTRAL
2	0.19	12.03	9.80	0.01	9.92	31.76	53.93	-22.17	Average	NEUTRAL
3	0.44	19.19	9.54	0.02	9.91	38.66	57.11	-18.45	QP	NEUTRAL
4	0.44	15.83	9.54	0.02	9.91	35.30	47.11	-11.81	Average	NEUTRAL
5	0.75	5.22	9.78	0.03	9.91	24.94	56.00	-31.06	QP	NEUTRAL
6	0.75	-1.68	9.78	0.03	9.91	18.04	46.00	-27.96	Average	NEUTRAL
7	4.53	-0.53	9.76	0.06	9.92	19.21	56.00	-36.79	QP	NEUTRAL
8	4.53	-6.82	9.76	0.06	9.92	12.92	46.00	-33.08	Average	NEUTRAL
9	9.76	0.77	9.79	0.11	9.94	20.61	60.00	-39.39	QP	NEUTRAL
10	9.76	-5.96	9.79	0.11	9.94	13.88	50.00	-36.12	Average	NEUTRAL
11	19.02	-0.33	9.77	0.17	9.95	19.56	60.00	-40.44	QP	NEUTRAL
12	19.02	-6.65	9.77	0.17	9.95	13.24	50.00	-36.76	Average	NEUTRAL

Note:
1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

11. Antenna Requirements

11.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

For intentional device, according to RSS-Gen issue 5 section 6.8.
The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

11.2. Result

The product is that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 2.85 dBi.

12. Dynamic Frequency Selection

12.1. Applicability of DFS requirements

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	☐Master	☒Client Without Radar Detection	☐Client with Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☐Master Device or Client with Radar Detection	☒Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	☐Master Device or Client with Radar Detection	☒Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

12.2. Limit

(1) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

(2) DFS Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

12.3. Parameters of radar test waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test
waveforms.

Table 5 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu sec}}\right)\right\}$	60%	30
		Test B			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.
Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4

12.4. Calibration of radar waveform

Radar Waveform Calibration Procedure:

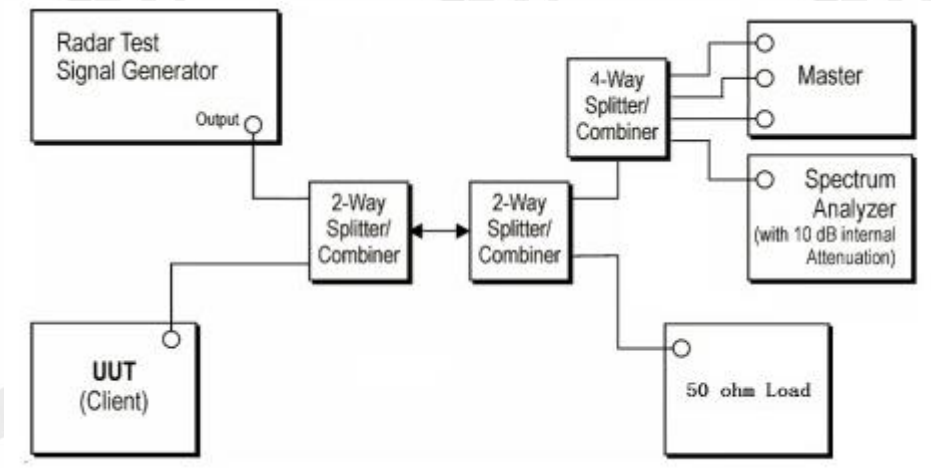
(1) A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master

(2) The interference Radar Detection Threshold Level is -62dBm + 0dBi +1dB = -61dBm that had been taken into account the output power range and antenna gain.

(3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz. The spectrum analyzer had offset -1.0dB to compensate RF cable loss 1.0dB.

(4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was - -62dBm + 0dBi +1dB = -61dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

Conducted Calibration Setup:



Note: 1. Use the software "Web" to set the frequency channel.

2. EUT is not support TPC and not with Radar detection.

12.5. Channel closing transmission time, channel move time and non-occupancy period

Block diagram of test setup Test Procedure:

(1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.

(2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.

(3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.

(4) EUT will associate with the master at channel. The file “iperf.exe” specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Test Software in order to properly load the network for the entire period of the test.

(5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.

(6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.

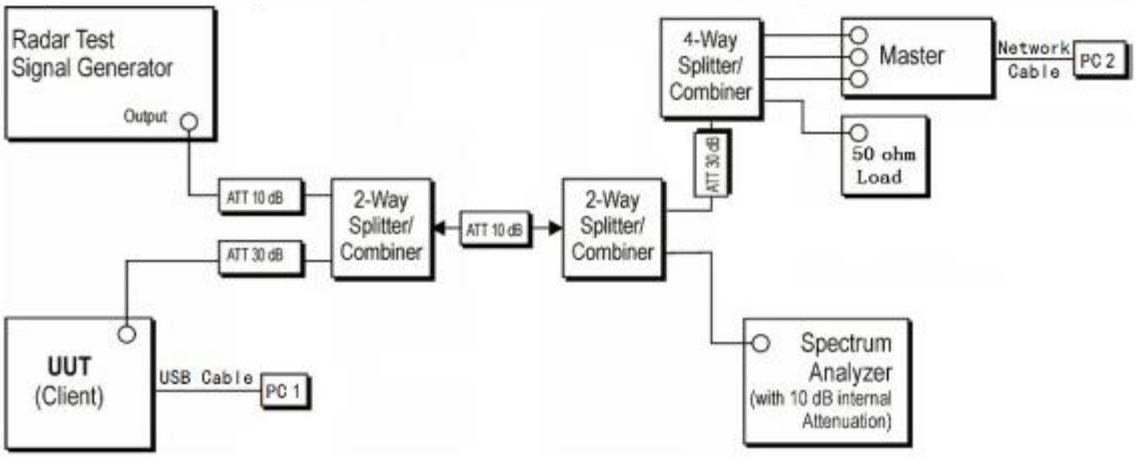
(7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the

(8) spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

12.6. Test setup

Setup for Client with injection at the Master



12.7. Test result

N/A

Note: The operation frequency is 5150MHz—5250MHz, 5745MHz-5825MHz, it does not support DFS