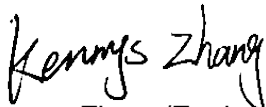


FCC CERTIFICATION TEST REPORT

Applicant:	Sahara Presentation Systems Ltd
Address:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent DA1 5UR, United Kingdom
Manufacturer:	Sahara Presentation Systems Ltd
Address:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent DA1 5UR, United Kingdom
Product Description:	Clevershare Hub, CleverHub
Brand Name:	CLEVERTOUCH
Tested Model:	CleverHub
FCC ID:	2APKO-WB05
Report No.:	JCF230411201-003
Received Date:	Apr. 11, 2023
Tested Date:	Apr. 11, 2023 ~ Sep. 11, 2023
Issued Date:	Sep. 11, 2023
Test Standards:	FCC Rules and Regulations Part 15 Subpart C,
Test Procedure:	ANSI C63.10:2013
Test Result:	Pass

Prepared By:  <u>Kennys Zhang/Engineer</u>	Date: Sep. 11, 2023 
Reviewed By:  <u>Roger Li/Engineer</u>	Date: Sep. 11, 2023 
Approved By:  <u>Talent Zhang/Engineer</u>	Date: Sep. 11, 2023

Note: The test results in this report apply exclusively to the tested model / sample. Without written approval of Guangzhou Jingce Testing Technology Co., Ltd. the test report shall not be reproduced except in full.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 11, 2023	Original Report	/

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1. Test Report Declare

Applicant:	Sahara Presentation Systems Ltd
Address:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent DA1 5UR, United Kingdom
Manufacturer:	Sahara Presentation Systems Ltd
Address:	Europa House, Littlebrook DC1, Shield Road, Dartford, Kent DA1 5UR, United Kingdom
Product Name:	Clevershare Hub, CleverHub
Brand Name:	CLEVERTOUCH
Model Name:	Clevershare Hub, CleverHub
Difference Description:	The products with all the models covered in this report are the same as each other, except for different model name.

We Declare:

The equipment described above is tested by Guangzhou Jingce Testing Technology 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 Guangzhou Jingce Testing Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

2. Summary of Test Results

Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	6dB Bandwidth and 99 % Occupied Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207	Pass
7	Antenna Requirement	FCC Part 15.203	Pass
Note: This report changes the client module's matching circuit and antenna gain on the basis of report DDT-R22112825-1E03 which does not affect RF function. So all above test items are reference report DDT-R2211285-1E03 except Clause 5 and Clause 6.			

3. Test Laboratory

Guangzhou Jingce Testing Technology Co., Ltd.

Add.: No.192, Kezhu Road, Huangpu District, Guangzhou, Guangdong, China

Association for Laboratory Accreditation(A2LA). Certificate Number: 6594.01

FCC Designation Number: CN1331. Test Firm Registration Number: 360543

IC Test Firm Registration Number: 28796

Conformity Assessment Body identifier: CN0138

4. Equipment Under Test

4.1. Description of EUT

EUT Name:	Clevershare Hub, CleverHub
Model Number:	CleverHub
EUT Function Description:	Please refer the user's manual.
Power Supply:	Input: 100-240V ~ 50/60Hz 1.0A Max
Hardware Version:	NA
Software Version:	NA
Radio Specification:	IEEE802.11b/g/n/ax
Operation Frequency:	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz IEEE 802.11n HT40: 2422MHz—2452MHz IEEE 802.11ax HEW20: 2412MHz—2462MHz IEEE 802.11ax HEW40: 2422MHz—2452MHz
Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n (HT20/40): OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax (HEW20/40): OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Data Rate:	IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65.0, 72.2 Mbps IEEE 802.11n HT40: 15, 30, 45, 60, 90, 120, 135, 150 Mbps IEEE 802.11ax HEW20: 8.6, 17.2, 25.8, 34.4, 51.6, 68.8, 77.4, 86, 103.2, 114.7, 129, 143.4Mbps IEEE 802.11ax HEW40: 17.2, 34.4, 51.6, 68.8, 103.2, 137.6, 154.9, 172.1, 206.5, 229.4, 258.1, 286.8Mbps
Antenna Type:	FPC Antenna, MAX. Gain: 2.1 dBi

Note 1: EUT is the ab. of equipment under test.

Note 2: The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.

4.2. Channel List

Channel List for 802.11b/g/n/ax (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	/	/

Channel List for 802.11n/ax (40 MHz)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452
4	2427	7	2442	/	/
5	2432	8	2447	/	/

4.3. Test Channel Configuration

Tested mode, channel and rand data rate information			
Mode	Data rate (Mbps) (see Note)	Channel	Frequency (MHz)
802.11b	1MHz	Low: CH1	2412
	1MHz	Middle: CH6	2437
	1MHz	High: CH11	2462
802.11g	6 MHz	Low: CH1	2412
	6 MHz	Middle: CH6	2437
	6 MHz	High: CH11	2462
802.11n HT20	MCS0	Low: CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
802.11n HT40	MCS0	Low: CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452
802.11ax HEW20	MCS0	Low: CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
802.11ax HEW40	MCS0	Low: CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.			

4.4. Test environment conditions

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

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

4.5. Description of Available Antennas

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band			
Test Software		Secure CRT	
Modulation Mode	Transmit Antenna Number	Test Software Setting Value	
		ANT1	Channel
802.11b	1	1 4 5	CH1
		1 4 5	CH6
		1 4 5	CH11
802.11g	1	1 0 5	CH1
		1 0 4	CH6
		1 0 4	CH11
802.11HT20	1	1 0 4	CH1
		1 0 4	CH6
		1 0 4	CH11

802.11n HT40	1	1 0 4	CH3
		1 0 4	CH6
		1 0 4	CH9
802.11ax HEW20	1	1 0 3	CH1
		1 0 3	CH6
		1 0 3	CH11
802.11ax HEW40	1	1 0 3	CH3
		1 0 3	CH6
		1 0 3	CH9

4.6. Description of Available Antennas

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11ax HEW20	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11ax HEW40	☒ 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
Note: WLAN 2.4 GHz & WLAN 5G can't transmit simultaneously. (declared by client)		

5. Description of Test Setup

5.1. Accessory

Description of Accessories	Manufacturer	Model Number	Description	Remark
Switching adapter	GangQi	GQ36-120300-Ax	Input: 100-240V 50/60Hz 1.0A Max Output: DC 12V3A 36.0W	/

5.2. Support Equipment

Equipment	Brand Name	Model Name	P/N
PC	Lenovo	T480	/

5.3. Test Setup

The EUT can work in Fixed Frequency mode.

5.4. Setup Diagram for Tests



6. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
AC Power Conduction emission	1.37 dB
All Radiated emissions	5.4dB
Conducted emissions	3.09 dB
Occupied Channel Bandwidth	1.1%
Conducted Output power	0.82dB
Power Spectral Density	0.82dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k = 2.	

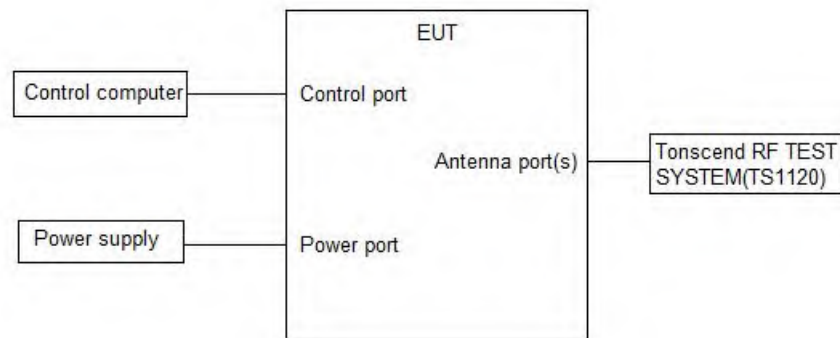
7. Measuring Instrument and Software Used

TS Test System						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☒	Spectrum Analyzer	Keysight	N9030B	MY56320512	Jul. 10, 2023	Jul. 09, 2024
☒	Vector Signal Generator	Keysight	N5182B	MY57300334	Nov. 24, 2022	Nov. 23, 2023
☒	Signal Generator	Keysight	N5171B	MY57280639	Nov. 24, 2022	Nov. 23, 2023
☒	DC POWER	Keysight	E342A	MY59020356	Jul. 14, 2023	Jul. 13, 2024
☒	Incubator thermometer	GWS	EL-02JA	21107288	Nov. 03, 2022	Nov. 02, 2023
☒	Control unit(Power sensor)	Tonscend	JS0806-2	/	Jul. 10, 2023	Jul. 09, 2024
☒	Wideband radio communication tester	R&S	CMW500	163478	Jul. 11, 2023	Jul. 10, 2024
☒	Spectrum Analyzer	Keysight	N9020B	MY60112206	Nov. 24, 2022	Nov. 23, 2023
☒	Control unit(Power sensor)	Tonscend	JS0806-2	21H8060465	Nov. 25, 2022	Nov. 24, 2023
Software						
Used	Description	Manufacturer	Name		Version	
☒	Test software	TS+	JS1120-3		V3.3.10	
RSE Test System						

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☒	EMI Receiver	R&S	ESW	101685	Jul. 12, 2023	Jul. 11, 2024
☒	Bilog Antenna	Schwarzbeck	VULB 9163	01416	Mar. 21, 2023	Mar. 20, 2024
☒	Horn Antenna 1	Schwarzbeck	BBHA 9120 D	01673	Nov. 23, 2022	Nov. 22, 2023
☒	Horn Antenna 2	ETS	3116C	00217677	Sep. 19, 2022	Sep. 18, 2023
☒	Signal Pre-Amplifier	Tonscend	TAP01018050	AP21C806 122	Jul. 10, 2023	Jul. 09, 2024
☒	Signal Pre-Amplifier	Tonscend	TAP9K3G32	AP20K806 104	Jul. 10, 2023	Jul. 09, 2024
☒	Signal Pre-Amplifier	ETS	3116C-PA	00217677	Aug. 21, 2023	Aug. 20, 2023
☒	3m Fully-anechoic Chamber	ETS	RFD-100	/	Apr. 24, 2021	Apr. 23, 2024
Software						
Used	Description	Manufacturer	Name		Version	
☒	Test software	TS+	TS+		V3.0.0.4	
Conducted Emission Test For AC Power Port						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☒	LISN	R&S	ENV216	102154	Jul. 10, 2023	Jul. 09, 2024
☒	EMI Receiver	R&S	ESR3	102509	Jul. 12, 2023	Jul. 11, 2024
Software						
Used	Description	Manufacturer	Name		Version	
☒	Test software	EZ	EZ-EMC		EMEC-3A1	
Other Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☒	Temperature & Humidity	Temperature	HTC-1	/	Nov. 25, 2022	Nov. 24, 2023

8. On Time and Duty Cycle

8.1. Block diagram of test setup



8.2. Limits

None; for reporting purposes only

8.3. Procedure

Reference report DDT-R2212825-1E03

9. 6 dB DTS Bandwidth and 99 % Occupied Bandwidth

9.1. Block diagram of test setup

Same as section 8.1

9.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2)	6 dB Bandwidth	≥ 500 kHz	2400-2483.5

9.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth :100 kHz For 99 % Occupied Bandwidth :1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: $\geq 3 \times$ RBW For 99 % Occupied Bandwidth : $\geq 3 \times$ RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99 % relative to the maximum level measured in the fundamental emission.

9.4. Results

Reference report DDT-R2212825-1E03

10. Conducted Output Power

10.1. Block diagram of test setup

Same as section 8.1

10.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	Peak Output Power	1 watt or 30 dBm	2400-2483.5

10.3. Test Procedure

Place the EUT on the table and set it in the transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

Measure peak power each channel.

Peak Detector use for Peak result.

AVG Detector use for AVG result.

10.4. Results

Reference report DDT-R2212825-1E03

11. Power Spectral Density

11.1. Block diagram of test setup

Same as section 8.1

11.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

11.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

11.4. Results

Reference report DDT-R2212825-1E03

12. Conducted Band edge and Spurious Emissions

12.1. Block diagram of test setup

Same as section 8.1

12.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

12.3. Test Procedure

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Connect the UUT to the spectrum analyzer and use the following settings:

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

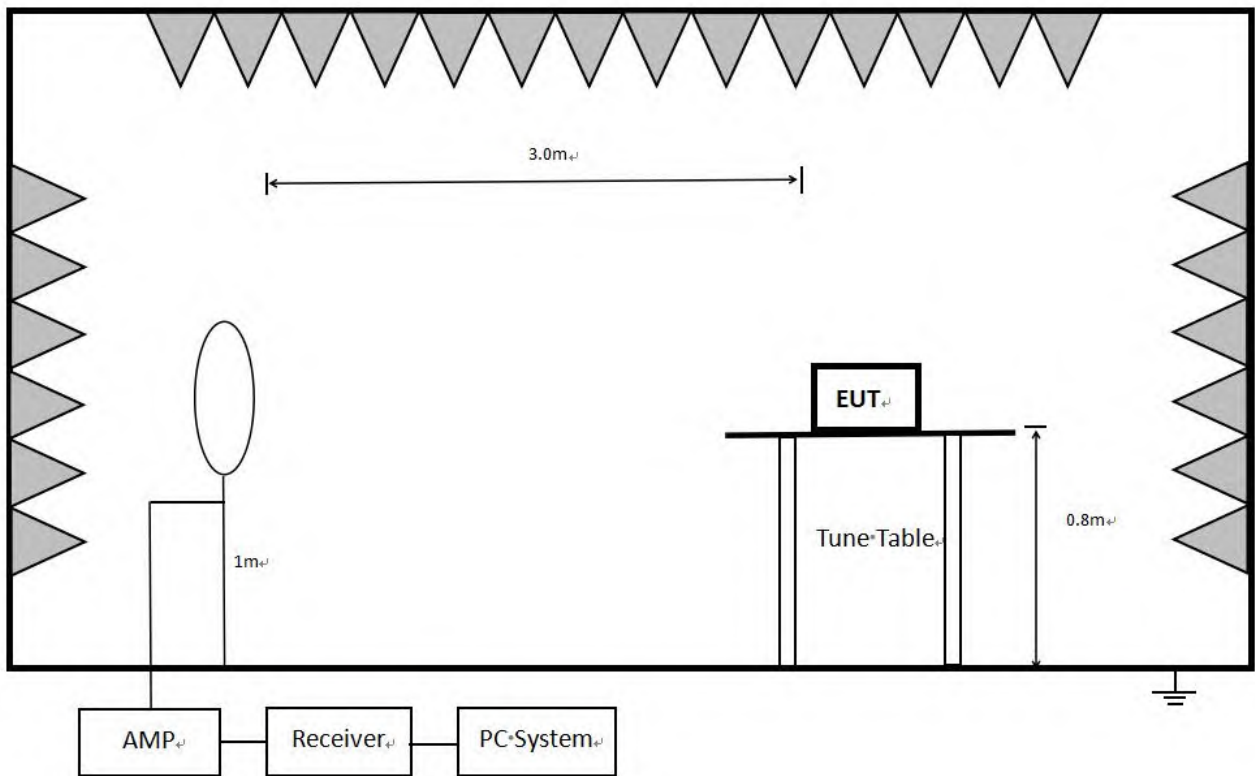
12.4. Test result

Reference report DDT-R2212825-1E03

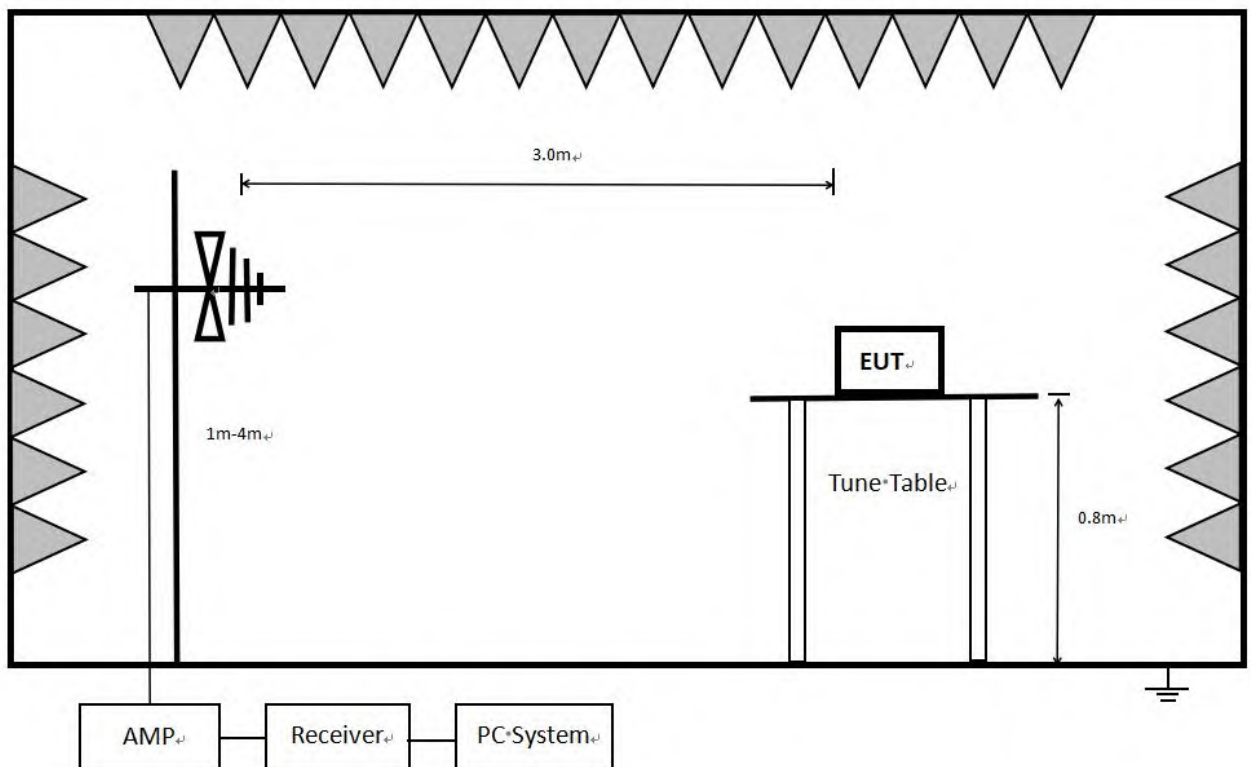
13. Radiated Emission

13.1. Block diagram of test setup

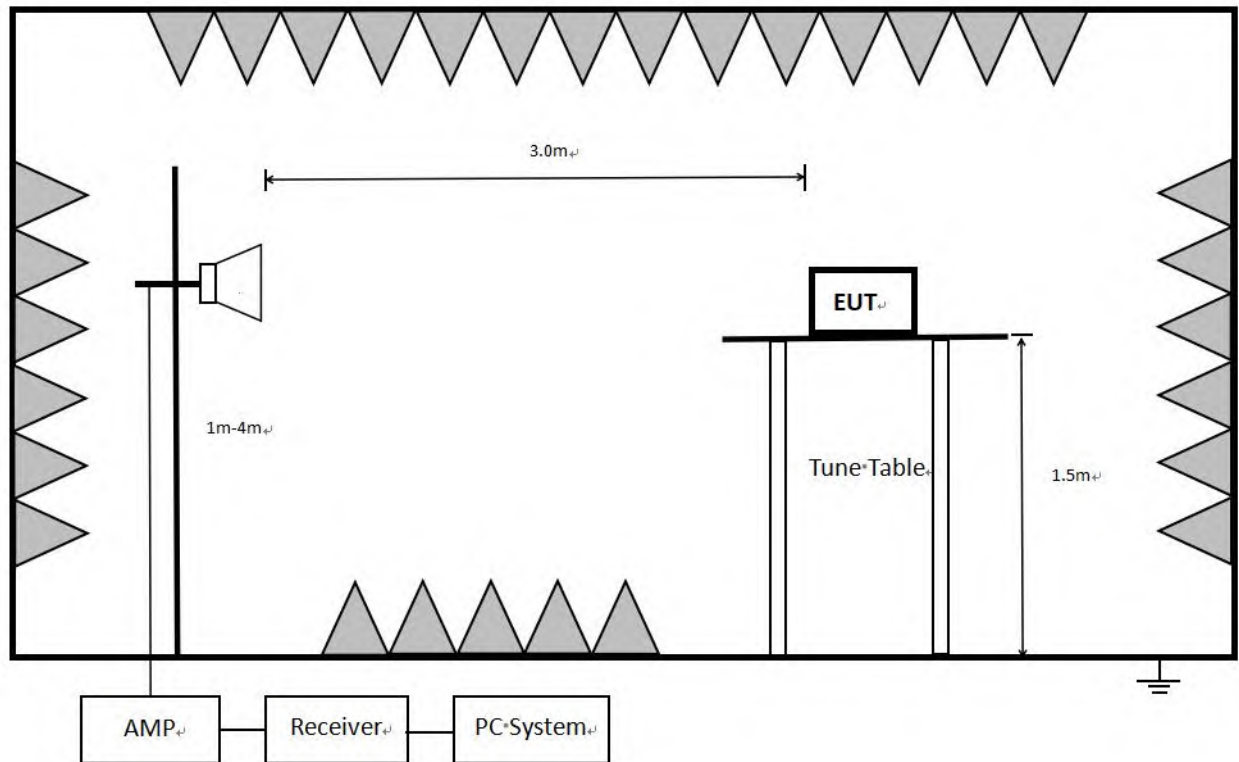
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



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.

13.2. 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			

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

²Above 38.6

(2) FCC 15.209 Limit.

Frequency MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	$2400/F(\text{kHz})$	$67.6-20\log(F)$
0.490 ~ 1.705	30	$24000/F(\text{kHz})$	$87.6-20\log(F)$
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 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Note: (1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

About Restricted bands of operation please refer to FCC § 15.205(a).

13.3. Test Procedure

Below 30 MHz:

The setting of the spectrum Analyzer

RBW	300 Hz (From 9 kHz to 0.15 MHz)/ 10 kHz (From 0.15 MHz to 30 MHz)
VBW	1 kHz (From 9 kHz to 0.15 MHz)/ 30 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of 1 meter height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz:

The setting of the spectrum Analyzer

RBW	100 kHz
VBW	300 kHz
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz:

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

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

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for AVG measurements. For the Duty Cycle please refer to clause 8.1.ON TIME AND DUTY CYCLE.

7. Restriction band: Investigated frequency range from 2310 MHz to 2430 MHz and 2445 MHz to 2500 MHz, 2310 MHz to 2450 MHz and 2425 MHz to 2500MHz.

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT does not support simultaneous transmission.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

13.4. Results

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz, so the final test was performed with frequency range from 30 MHz to 26 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 11B mode.

Note3: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

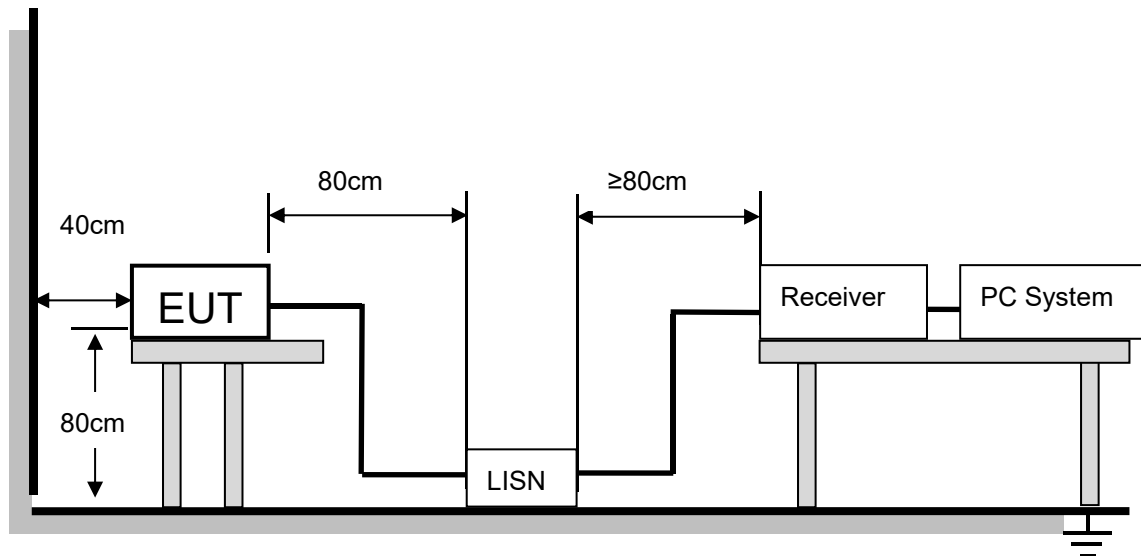
13.5. Original test data

Below 1 GHz and above 30 MHz test data Refer to appendix A

Above 1 GHz test data Refer to appendix B

14. AC Power Line Conducted Emissions

14.1. Block diagram of test setup



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

14.2. Limits

Please refer to CFR 47 FCC § 15.207 (a).

Frequency (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note 1: * Decreasing linearly with logarithm of frequency.

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

14.3. 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 2.4 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 C63.10.

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 30 MHz 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 2.4 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.

14.4. Test result

Pass. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worse case.

14.5. Original test data

AC Power Line Conducted Emission Test Data Refer to appendix C

15. Antenna Requirements

15.1. Applicable Requirements

Please refer to FCC §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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

15.2. Result

The antenna used for this product is FPC antenna and 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 2.1 dBi

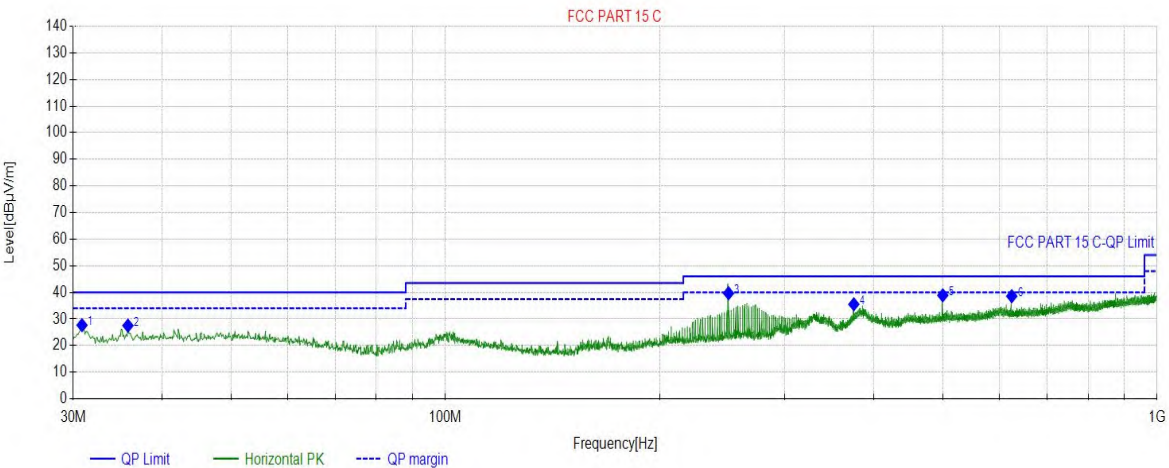
APPENDIX A – Radiated Emission Below 1GHz Test Data

Test Report

Project Information			
Customer:		EUT:	Clevershare Hub Clever
Model:	CleverHub	SN:	
Mode:	11B2412	Voltage:	120V 60Hz
Environment:	24.2℃ 54%	Engineer:	roger
Remark:			
Test Standard:			

Start of Test: 2023-07-04 18:32:22

Test Graph



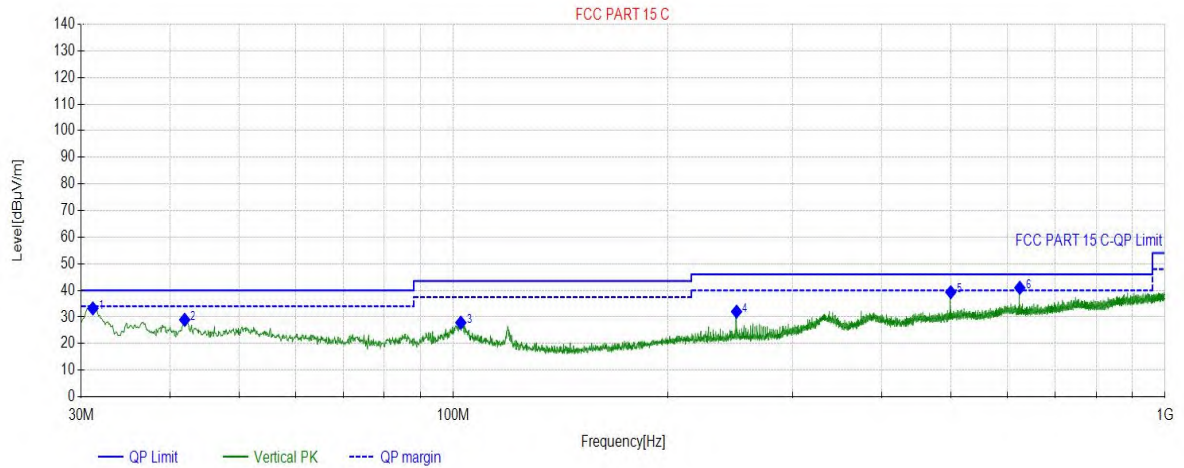
QP Final Data List								
NO.	Freq. (MHz)	Factor (dB)	QP Value (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Height (cm)	Angle (°)	Polarity
1	30.8731	19.03	27.71	40.00	12.29	100	26	Horizontal
2	35.8206	20.22	27.54	40.00	12.46	100	26	Horizontal
3	250.011	21.54	39.68	46.00	6.32	100	85.9	Horizontal
4	374.966	25.12	35.54	46.00	10.46	100	144	Horizontal
5	500.012	27.70	38.90	46.00	7.10	100	51	Horizontal
6	624.960	30.39	38.59	46.00	7.41	100	78	Horizontal

Test Report

Project Information			
Customer:	Hub	EUT:	Clevershare Hub Clever
Model:	CleverHub	SN:	
Mode:	11B2412	Voltage:	120V 60Hz
Environment:	24.2℃ 54%	Engineer:	roger
Remark:			
Test Standard:			

Start of Test: 2023-07-04 18:33:06

Test Graph



QP Final Data List

NO.	Freq. (MHz)	Factor (dB)	QP Value (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Height (cm)	Angle (°)	Polarity
1	31.1641	19.10	33.23	40.00	6.77	100	55	Vertical
2	41.9322	21.47	28.97	40.00	11.03	100	88	Vertical
3	102.466	20.63	27.89	43.50	15.61	100	222	Vertical
4	250.018	21.54	32.02	46.00	13.98	100	334	Vertical
5	500.012	27.70	39.34	46.00	6.66	100	329	Vertical
6	625.067	30.39	40.99	46.00	5.01	100	6.5	Vertical

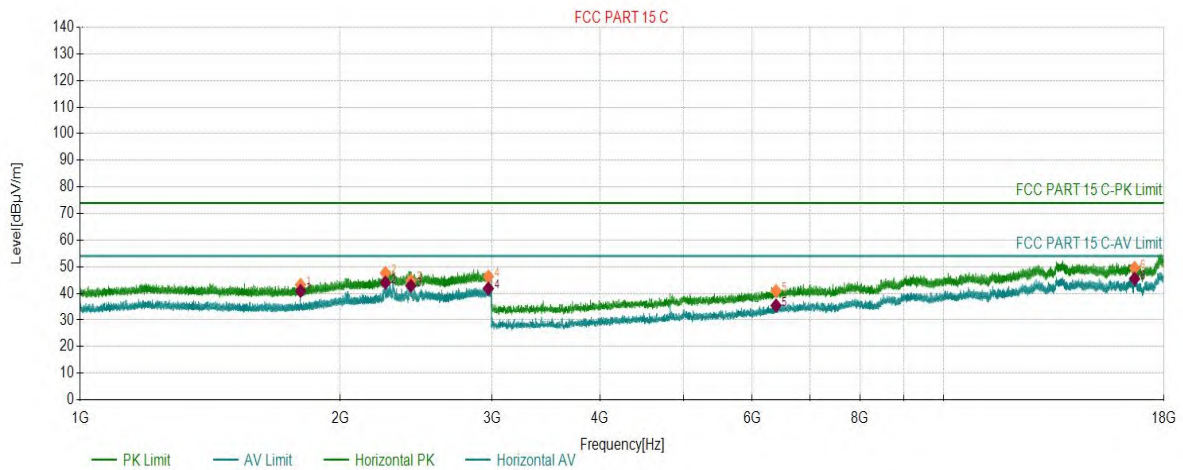
APPENDIX B – Radiated Emission Above 1GHz Test Data

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 09:55:21

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1799.8400	2.95	43.25	74.00	30.75	150	285	Horizontal
2	2256.8628	6.26	47.65	74.00	26.35	150	318	Horizontal
3	2415.6708	7.48	44.81	74.00	29.19	150	7	Horizontal
4	2970.0985	9.09	46.34	74.00	27.66	150	318	Horizontal
5	6396.1698	-4.39	40.88	74.00	33.12	150	346	Horizontal
6	16641.6821	11.04	49.56	74.00	24.44	150	8	Horizontal

AV Final Data List

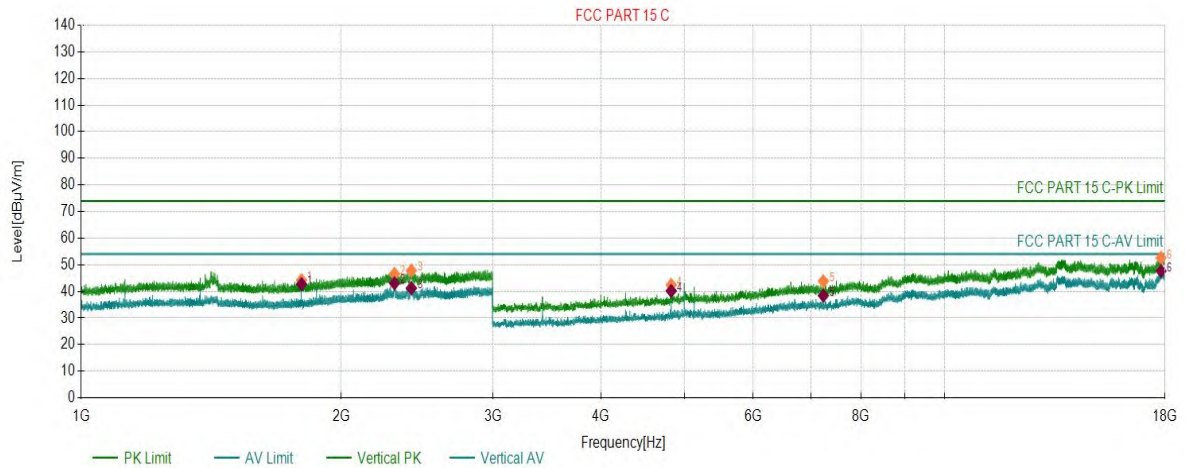
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1799.8400	2.95	40.95	54.00	13.05	150	285	Horizontal
2	2256.8628	6.26	44.06	54.00	9.94	150	318	Horizontal
3	2415.6708	7.48	42.86	54.00	11.14	150	7	Horizontal
4	2970.0985	9.09	41.84	54.00	12.16	150	318	Horizontal
5	6396.1698	-4.39	35.44	54.00	18.56	150	346	Horizontal
6	16641.6821	11.04	45.51	54.00	8.49	150	8	Horizontal

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 09:56:52

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1799.7400	3.35	44.21	74.00	29.79	150	7	Vertical
2	2306.0653	6.22	46.62	74.00	27.38	150	81	Vertical
3	2412.4706	7.20	47.83	74.00	26.17	150	220	Vertical
4	4823.3412	-9.99	42.44	74.00	31.56	150	284	Vertical
5	7236.9618	-2.36	43.83	74.00	30.17	150	36	Vertical
6	17808.7404	14.51	52.60	74.00	21.40	150	260	Vertical

AV Final Data List

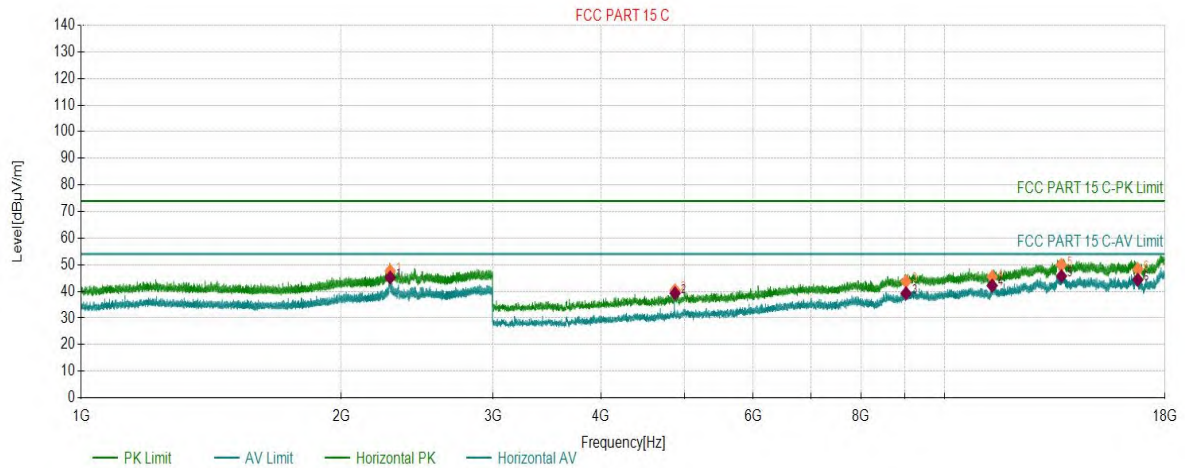
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	1799.7400	3.35	42.75	54.00	11.25	150	7	Vertical
2	2306.0653	6.22	43.06	54.00	10.94	150	81	Vertical
3	2412.4706	7.20	41.21	54.00	12.79	150	220	Vertical
4	4823.3412	-9.99	40.19	54.00	13.81	150	284	Vertical
5	7236.9618	-2.36	38.43	54.00	15.57	150	36	Vertical
6	17808.7404	14.51	47.66	54.00	6.34	150	260	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2437	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:05:59

Test Graph



PK Final Data List

NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2279.7640	6.33	47.71	74.00	26.29	150	353	Horizontal
2	4873.5937	-9.54	40.43	74.00	33.57	150	57	Horizontal
3	9022.0511	2.46	43.71	74.00	30.29	150	240	Horizontal
4	11351.6676	5.16	45.46	74.00	28.54	150	46	Horizontal
5	13654.2827	11.14	49.99	74.00	24.01	150	163	Horizontal
6	16740.6870	10.90	48.30	74.00	25.70	150	163	Horizontal

AV Final Data List

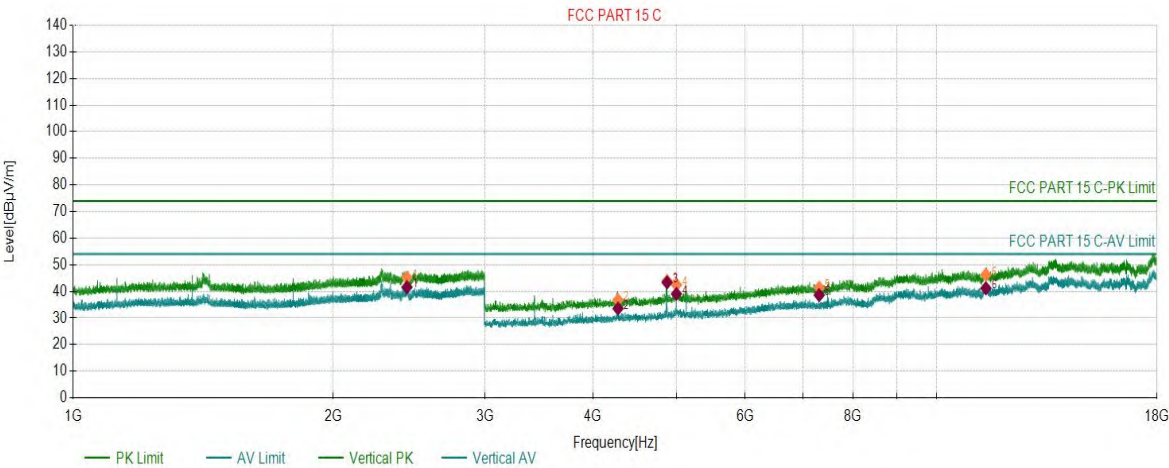
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2279.7640	6.33	45.20	54.00	8.80	150	353	Horizontal
2	4873.5937	-9.54	39.28	54.00	14.72	150	57	Horizontal
3	9022.0511	2.46	39.27	54.00	14.73	150	240	Horizontal
4	11351.6676	5.16	42.20	54.00	11.80	150	46	Horizontal
5	13654.2827	11.14	45.74	54.00	8.26	150	163	Horizontal
6	16740.6870	10.90	44.39	54.00	9.61	150	163	Horizontal

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2437	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:07:38

Test Graph



PK Final Data List								
NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2435.4718	7.35	45.16	74.00	28.84	150	120	Vertical
2	4275.8138	-12.18	36.74	74.00	37.26	150	346	Vertical
3	4873.5937	-9.59	43.93	74.00	30.07	150	317	Vertical
4	4996.5998	-8.53	42.48	74.00	31.52	150	257	Vertical
5	7311.9656	-1.89	41.37	74.00	32.63	150	3	Vertical
6	11404.9202	5.98	46.26	74.00	27.74	150	14	Vertical

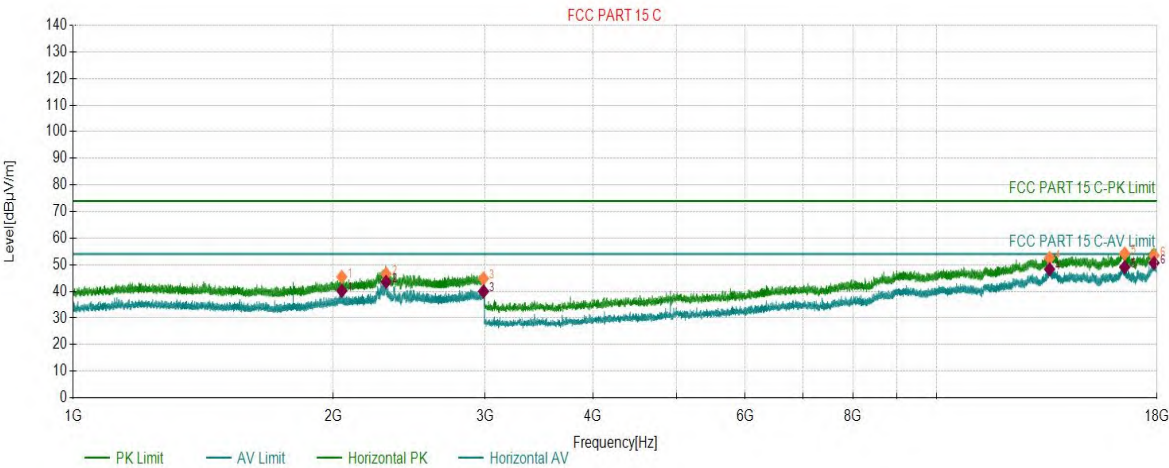
AV Final Data List								
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2435.4718	7.35	41.59	54.00	12.41	150	120	Vertical
2	4275.8138	-12.18	33.57	54.00	20.43	150	346	Vertical
3	4873.5937	-9.59	43.37	54.00	10.63	150	317	Vertical
4	4996.5998	-8.53	39.04	54.00	14.96	150	257	Vertical
5	7311.9656	-1.89	38.64	54.00	15.36	150	3	Vertical
6	11404.9202	5.98	41.19	54.00	12.81	150	14	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:33:10

Test Graph



PK Final Data List								
NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2046.9523	5.32	45.43	74.00	28.57	150	358	Horizontal
2	2303.7652	6.41	46.54	74.00	27.46	150	309	Horizontal
3	2986.8993	9.19	44.83	74.00	29.17	150	358	Horizontal
4	13514.7757	10.72	52.56	74.00	21.44	150	164	Horizontal
5	16511.9256	11.79	54.26	74.00	19.74	150	346	Horizontal
6	17855.9928	14.92	53.49	74.00	20.51	150	195	Horizontal

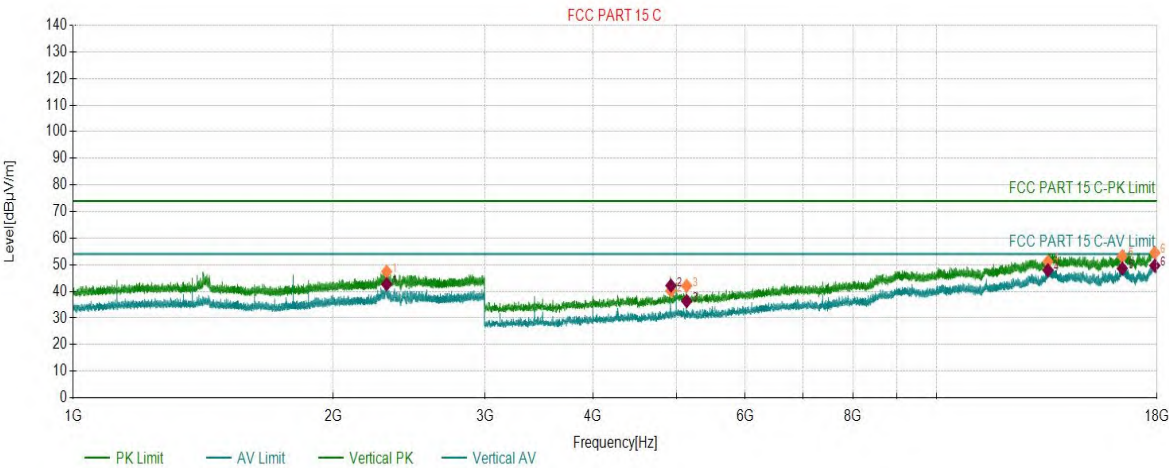
AV Final Data List								
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2046.9523	5.32	40.23	54.00	13.77	150	358	Horizontal
2	2303.7652	6.41	43.57	54.00	10.43	150	309	Horizontal
3	2986.8993	9.19	40.00	54.00	14.00	150	358	Horizontal
4	13514.7757	10.72	48.33	54.00	5.67	150	164	Horizontal
5	16511.9256	11.79	49.14	54.00	4.86	150	346	Horizontal
6	17855.9928	14.92	50.67	54.00	3.33	150	195	Horizontal

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:34:49

Test Graph



PK Final Data List								
NO.	Freq. (MHz)	Factor (dB)	PK Value (dBμV/m)	PK Limit (dBμV/m)	PK Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2306.9653	6.23	47.41	74.00	26.59	150	86	Vertical
2	4923.8462	-9.17	40.17	74.00	33.83	150	56	Vertical
3	5135.3568	-8.50	42.09	74.00	31.91	150	7	Vertical
4	13454.7727	10.51	51.16	74.00	22.84	150	347	Vertical
5	16407.6704	12.03	53.22	74.00	20.78	150	155	Vertical
6	17892.7446	14.93	54.50	74.00	19.50	150	319	Vertical

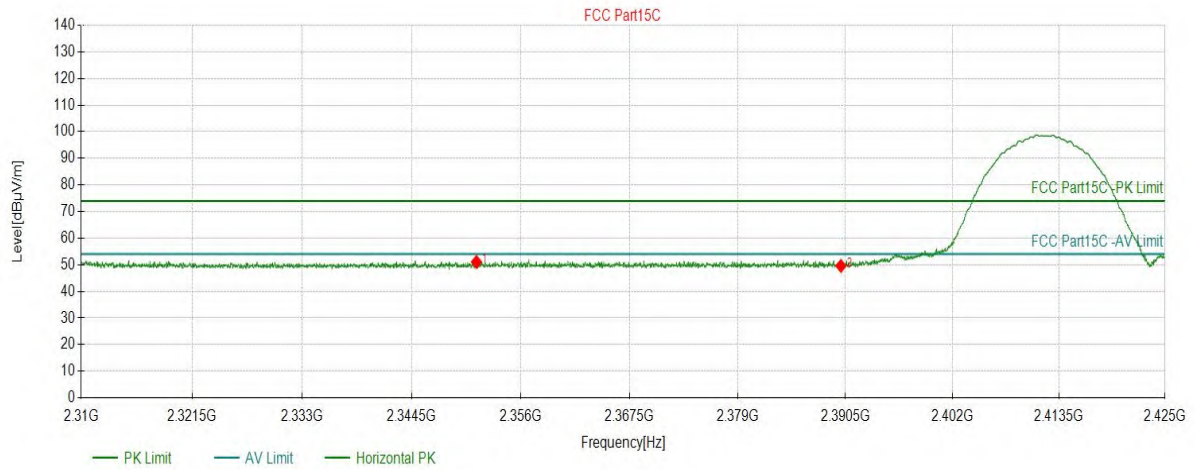
AV Final Data List								
NO.	Freq. (MHz)	Factor (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Angle (°)	Polarity
1	2306.9653	6.23	42.71	54.00	11.29	150	86	Vertical
2	4923.8462	-9.17	42.17	54.00	11.83	150	56	Vertical
3	5135.3568	-8.50	36.36	54.00	17.64	150	7	Vertical
4	13454.7727	10.51	47.99	54.00	6.01	150	347	Vertical
5	16407.6704	12.03	48.63	54.00	5.37	150	155	Vertical
6	17892.7446	14.93	49.70	54.00	4.30	150	319	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 09:59:55

Test Graph



Suspected Data List

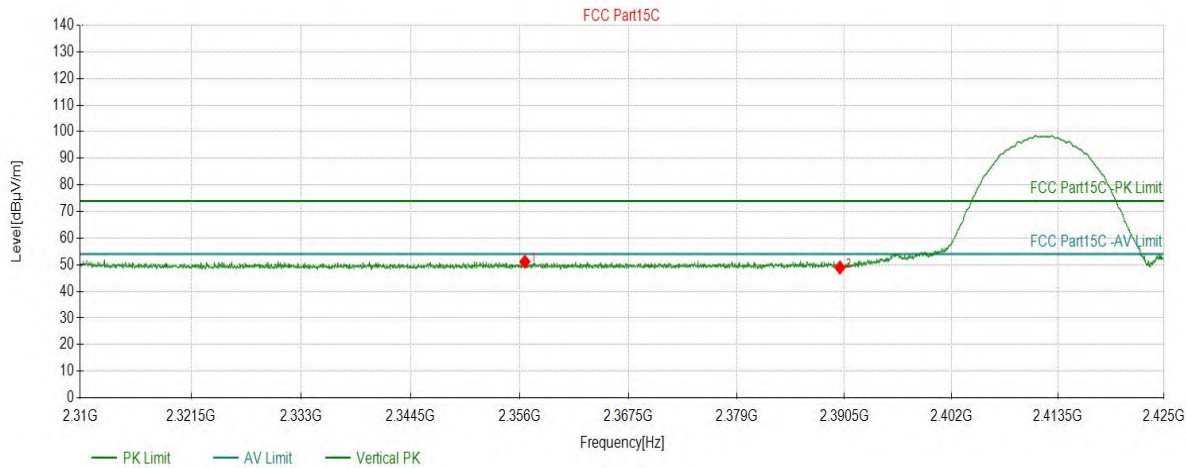
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2351.2988	51.06	5.96	74.00	22.94	150	357	PK	Horizont
2	2390.0283	49.57	5.94	74.00	24.43	150	319	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:00:48

Test Graph



Suspected Data List

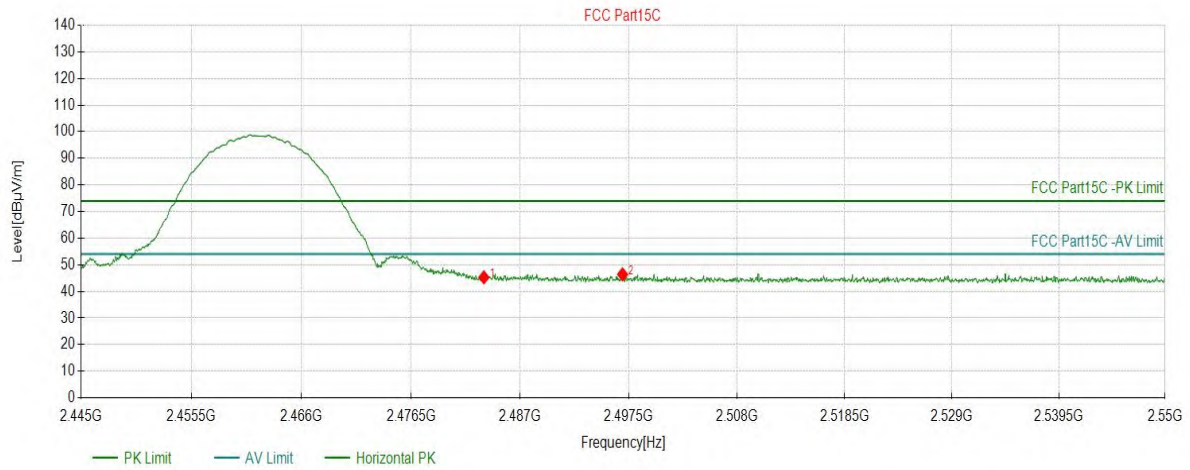
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2356.5138	51.15	5.71	74.00	22.85	150	234	PK	Vertical
2	2390.0283	48.96	5.65	74.00	25.04	150	272	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:31:25

Test Graph



Suspected Data List

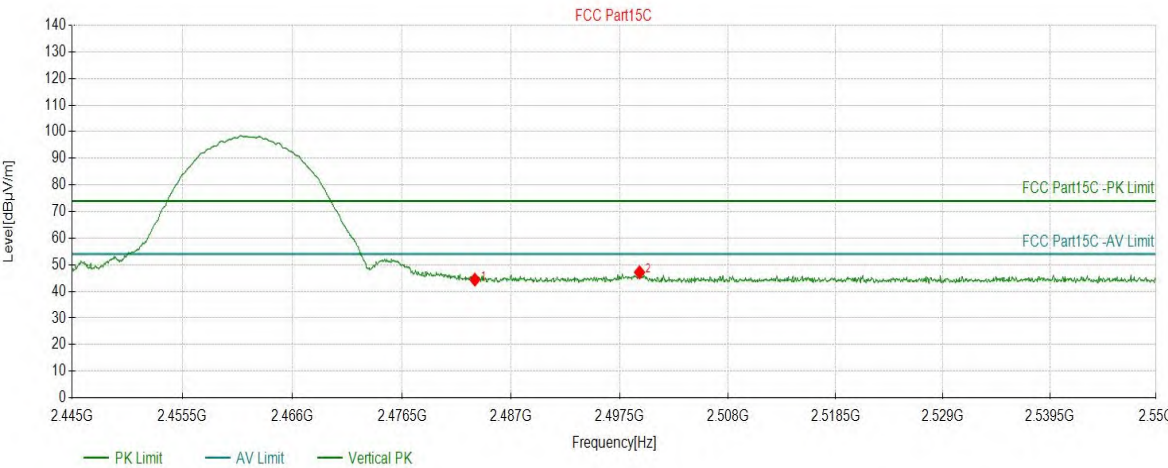
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	45.28	6.37	74.00	28.72	150	78	PK	Horizont
2	2496.8959	46.40	6.44	74.00	27.60	150	282	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11B_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:32:09

Test Graph



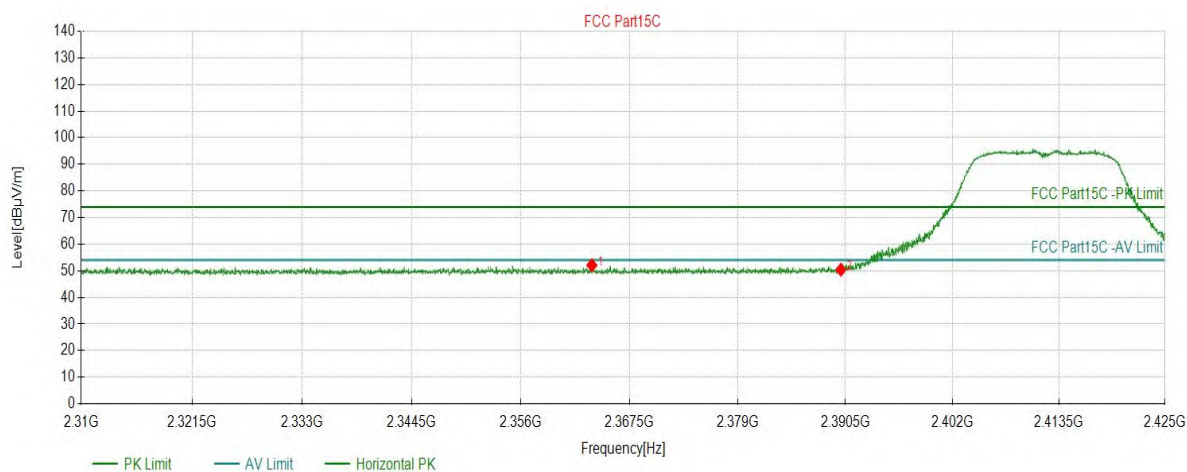
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	44.43	6.28	74.00	29.57	150	69	PK	Vertical
2	2499.4172	47.17	6.41	74.00	26.83	150	146	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11G_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:38:24

Test Graph



Suspected Data List

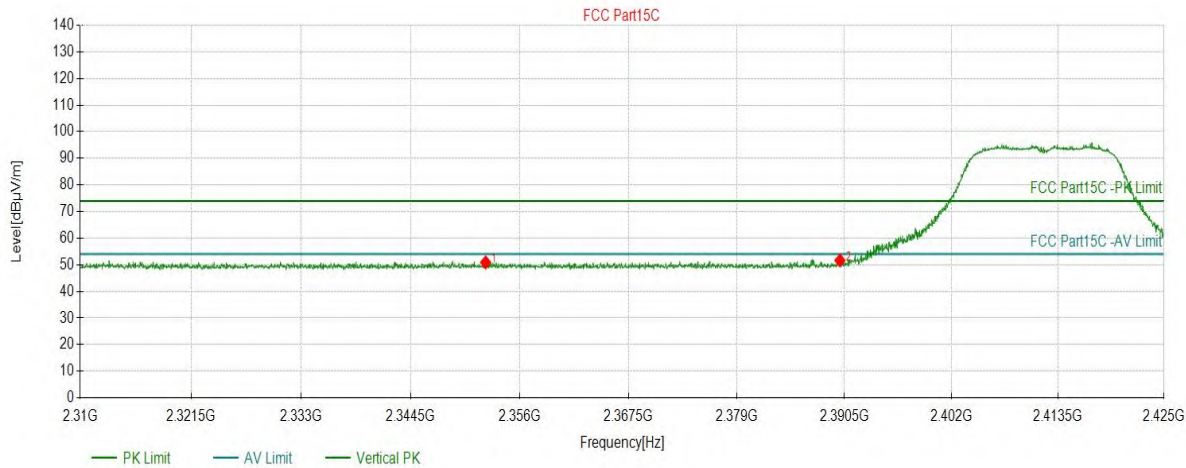
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2363.4928	52.08	5.96	74.00	21.92	150	67	PK	Horizont
2	2390.0283	50.42	5.94	74.00	23.58	150	331	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11G_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:39:17

Test Graph



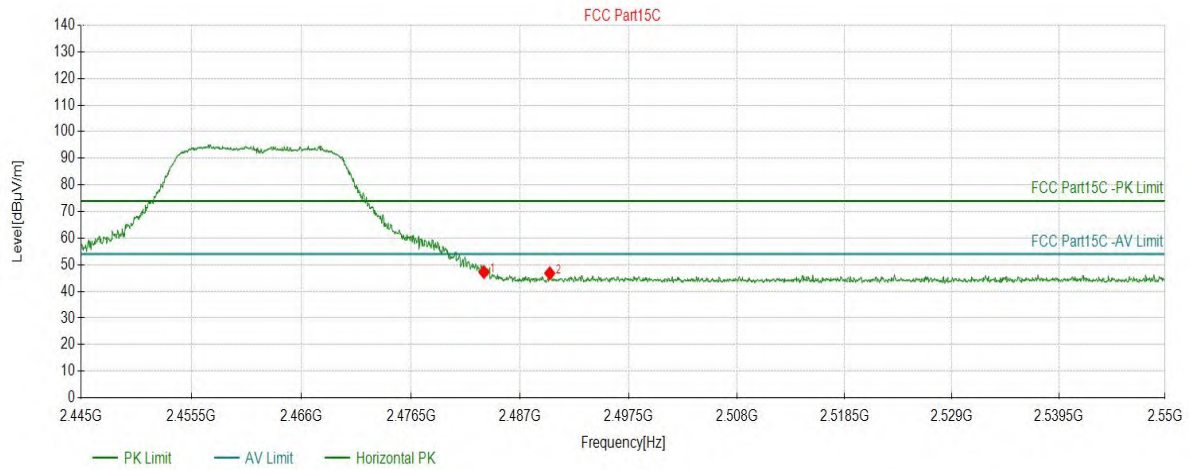
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2352.3725	50.90	5.71	74.00	23.10	150	307	PK	Vertical
2	2390.0283	51.65	5.65	74.00	22.35	150	350	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11G_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:41:33

Test Graph



Suspected Data List

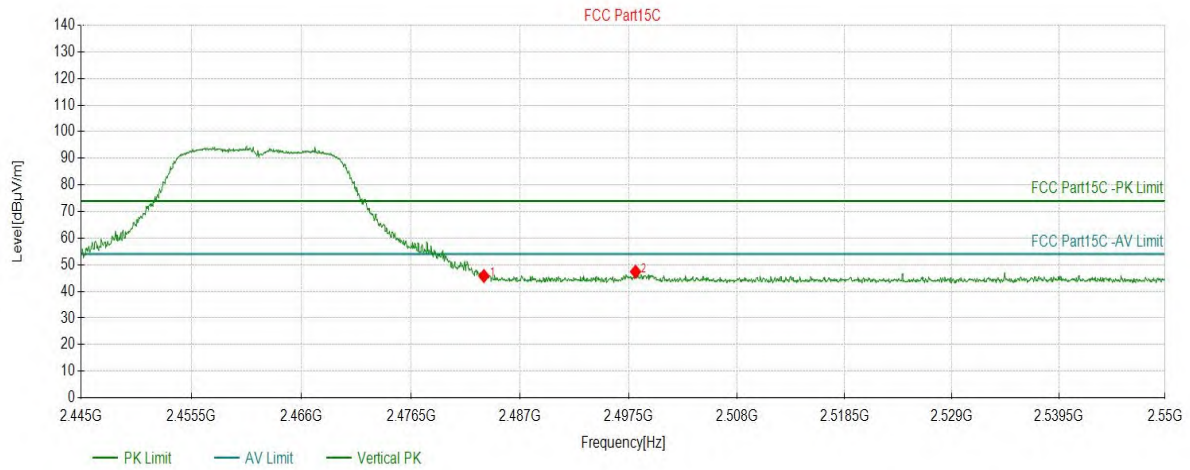
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	47.26	6.37	74.00	26.74	150	3	PK	Horizont
2	2489.8574	46.80	6.41	74.00	27.20	150	47	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11G_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:42:17

Test Graph



Suspected Data List

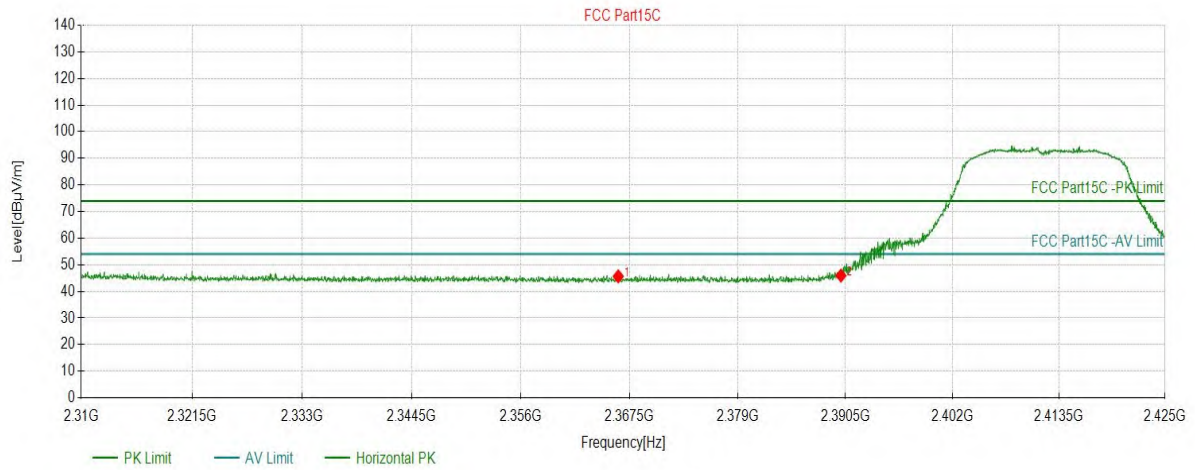
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	45.79	6.28	74.00	28.21	150	133	PK	Vertical
2	2498.1566	47.40	6.40	74.00	26.60	150	194	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N20_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:44:33

Test Graph



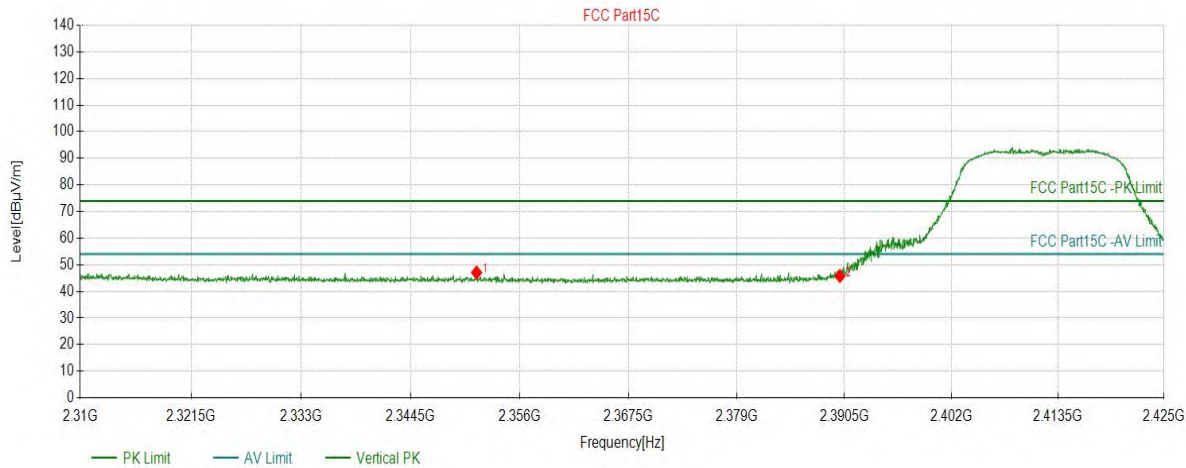
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2366.2921	45.65	5.96	74.00	28.35	150	240	PK	Horizont
2	2390.0283	45.94	5.94	74.00	28.06	150	350	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N20_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:45:26

Test Graph



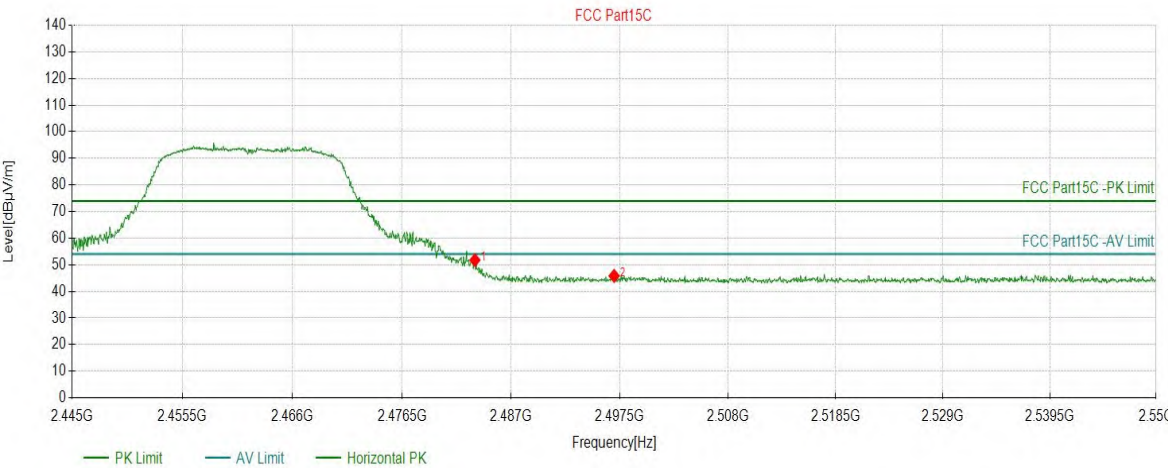
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2351.4138	47.08	5.71	74.00	26.92	150	250	PK	Vertical
2	2390.0283	45.79	5.65	74.00	28.21	150	350	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N20_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:47:52

Test Graph



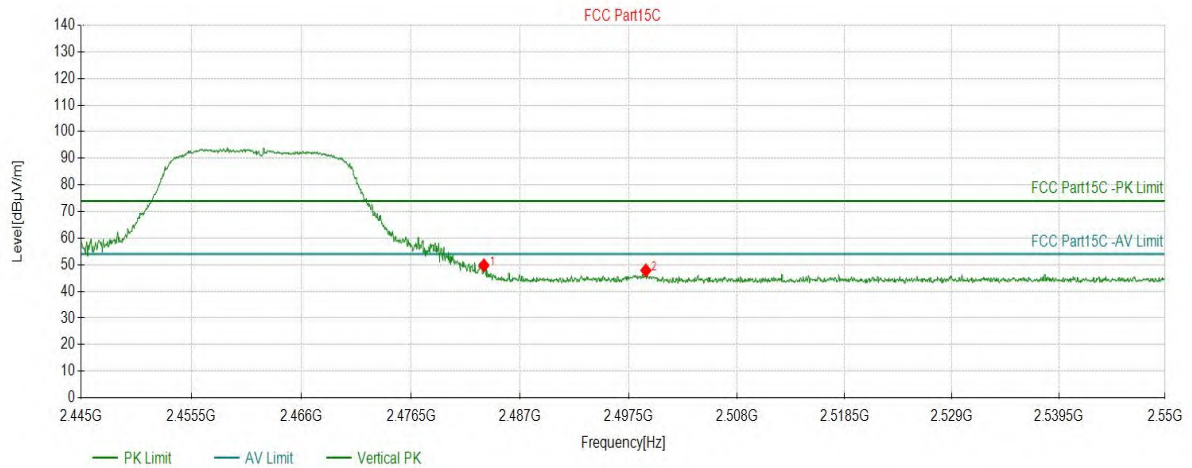
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	51.78	6.37	74.00	22.22	150	13	PK	Horizont
2	2496.9485	45.82	6.44	74.00	28.18	150	2	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N20_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:48:36

Test Graph



Suspected Data List

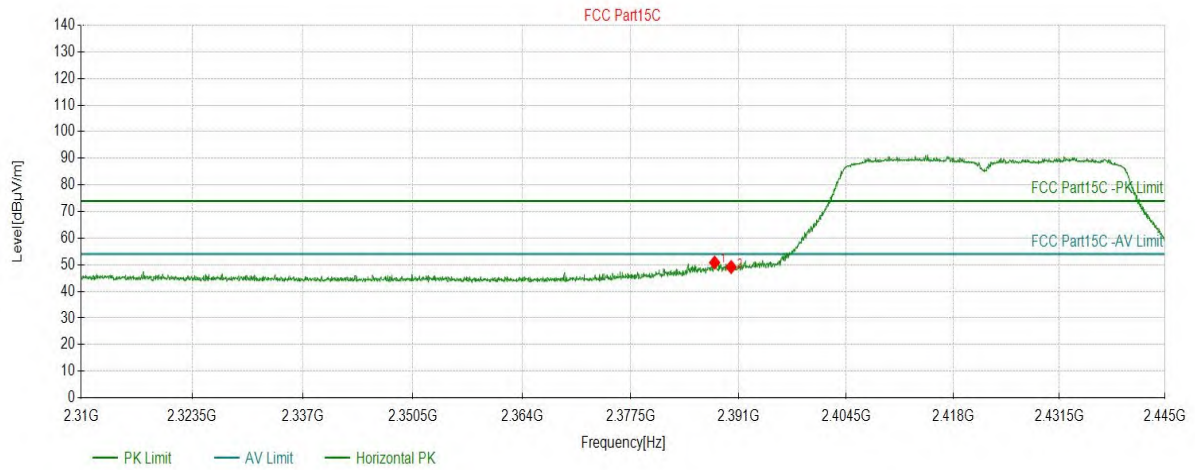
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	49.77	6.28	74.00	24.23	150	230	PK	Vertical
2	2499.1546	47.90	6.40	74.00	26.10	150	138	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N40_2422	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:56:49

Test Graph



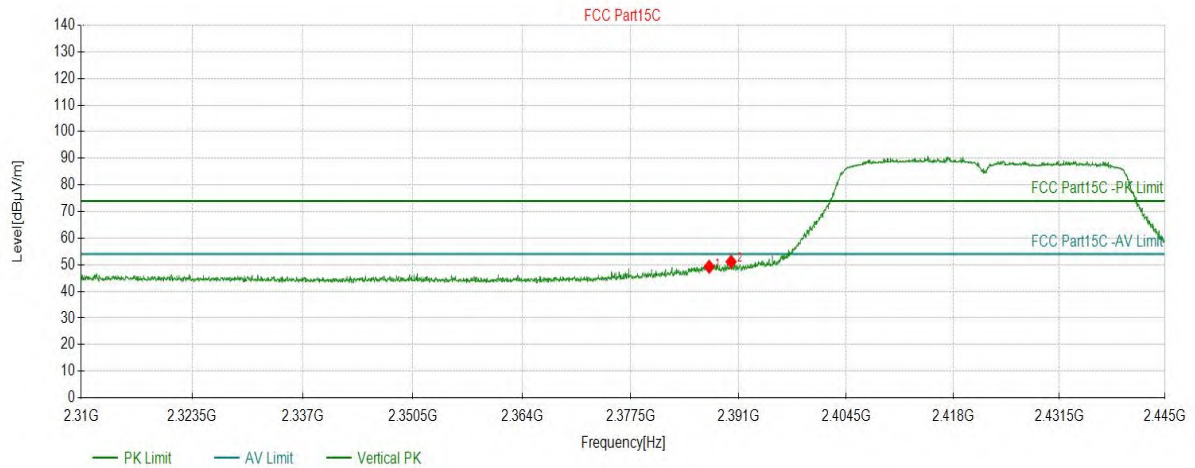
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2387.9660	50.85	5.95	74.00	23.15	150	14	PK	Horizont
2	2390.0367	49.17	5.94	74.00	24.83	150	14	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N40_2422	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 10:57:42

Test Graph



Suspected Data List

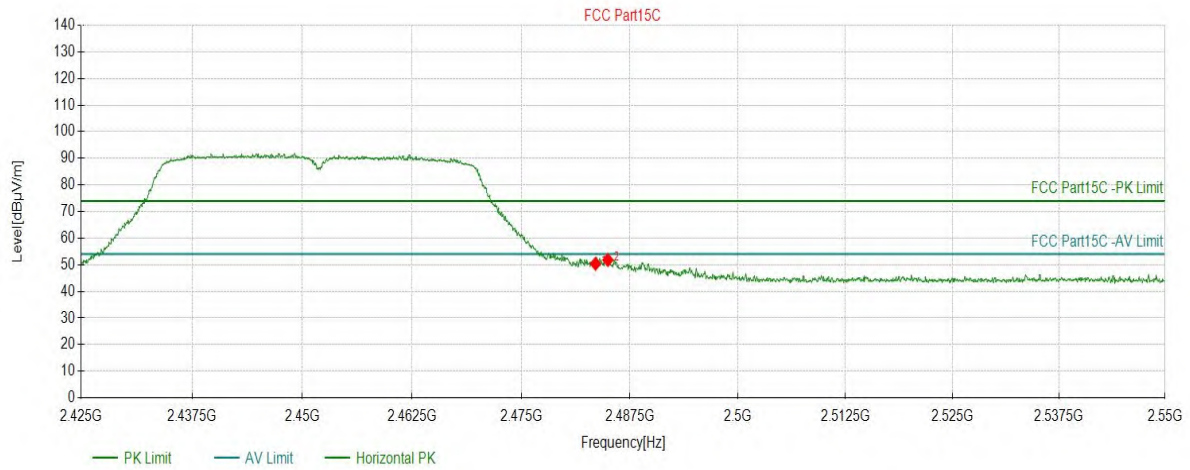
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2387.2908	49.27	5.66	74.00	24.73	150	219	PK	Vertical
2	2390.0367	51.14	5.65	74.00	22.86	150	235	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N40_2452	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:00:55

Test Graph



Suspected Data List

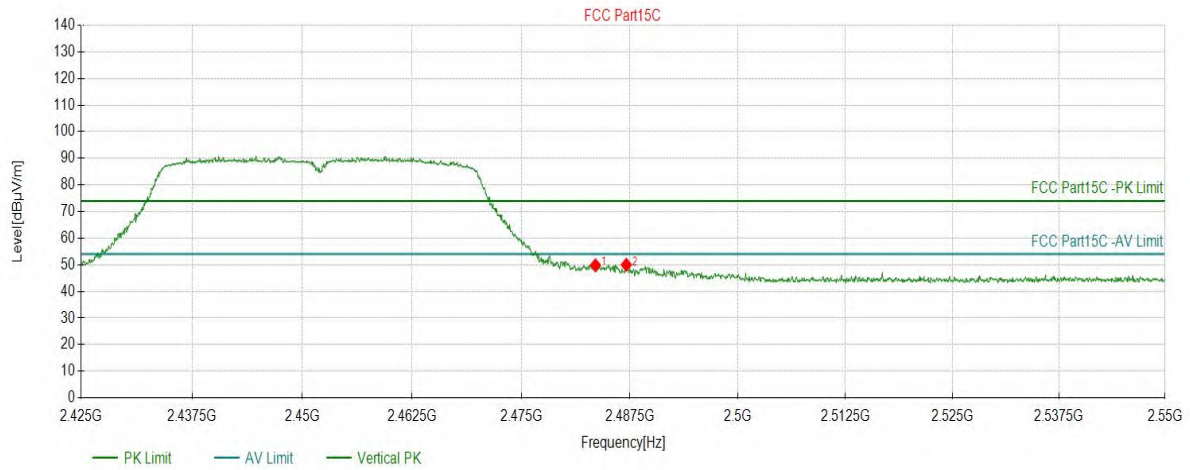
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5293	50.36	6.37	74.00	23.64	150	344	PK	Horizont
2	2484.9675	51.79	6.38	74.00	22.21	150	9	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11N40_2452	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:01:32

Test Graph



Suspected Data List

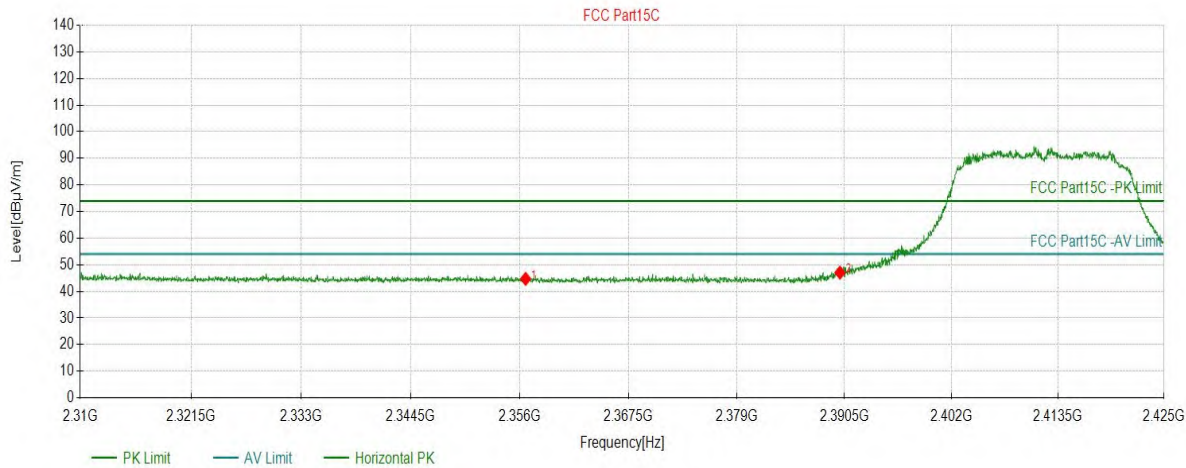
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5293	49.83	6.28	74.00	24.17	150	124	PK	Vertical
2	2487.0935	49.98	6.31	74.00	24.02	150	128	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX20_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:04:22

Test Graph



Suspected Data List

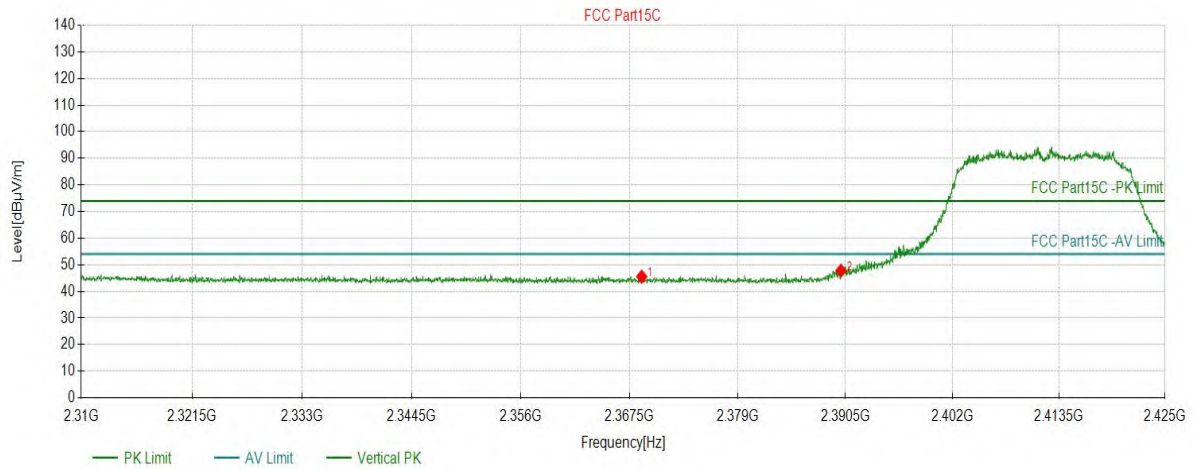
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2356.5905	44.73	5.96	74.00	29.27	150	2	PK	Horizont
2	2390.0283	47.05	5.94	74.00	26.95	150	0	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX20_2412	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:05:15

Test Graph



Suspected Data List

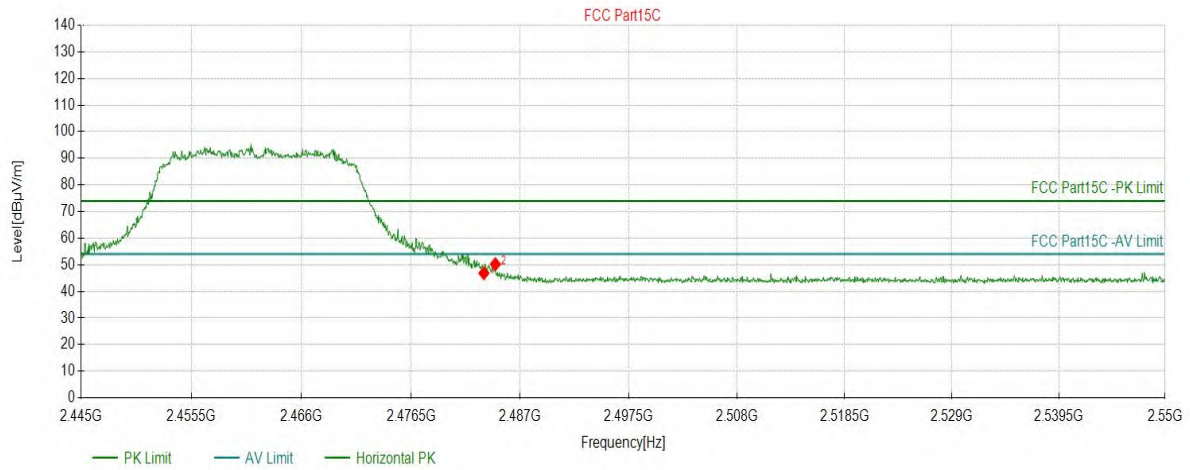
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2368.7846	45.56	5.69	74.00	28.44	150	314	PK	Vertical
2	2390.0283	47.81	5.65	74.00	26.19	150	351	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX20_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:07:25

Test Graph



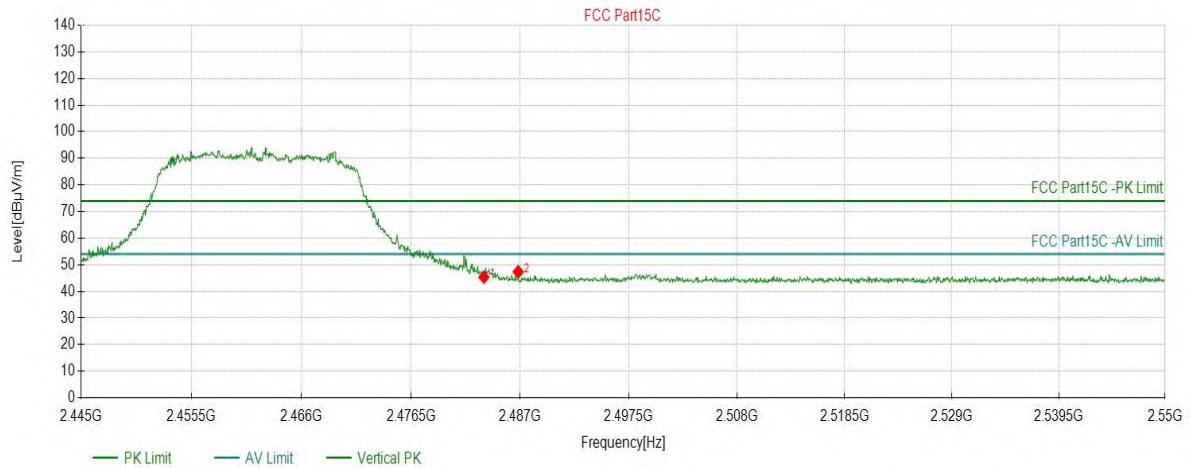
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	46.84	6.37	74.00	27.16	150	8	PK	Horizont
2	2484.6048	50.22	6.38	74.00	23.78	150	10	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX20_2462	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:08:09

Test Graph



Suspected Data List

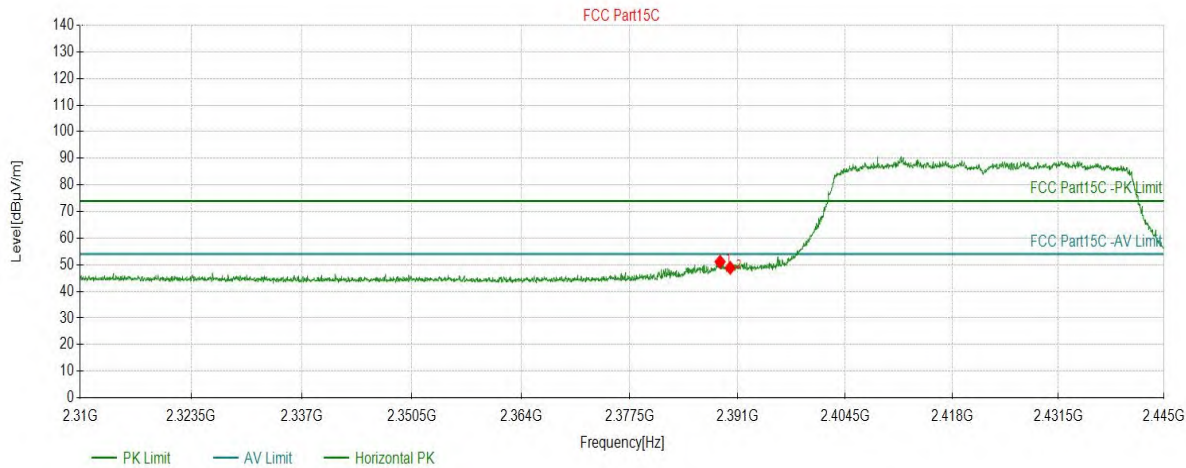
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5018	45.36	6.28	74.00	28.64	150	128	PK	Vertical
2	2486.8109	47.36	6.31	74.00	26.64	150	242	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX40_2422	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:10:51

Test Graph



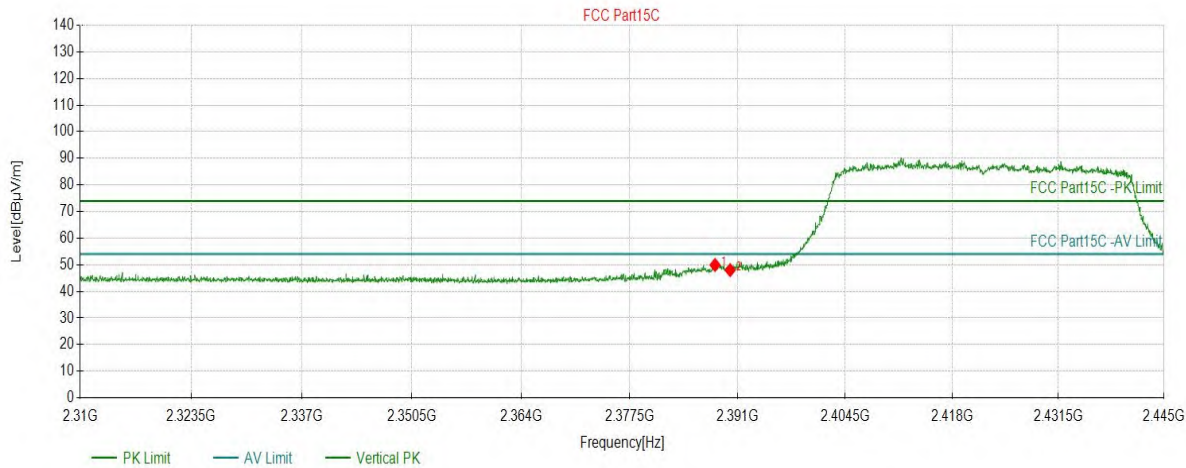
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2388.7763	51.13	5.95	74.00	22.87	150	14	PK	Horizont
2	2390.0367	48.86	5.94	74.00	25.14	150	14	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX40_2422	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:11:43

Test Graph



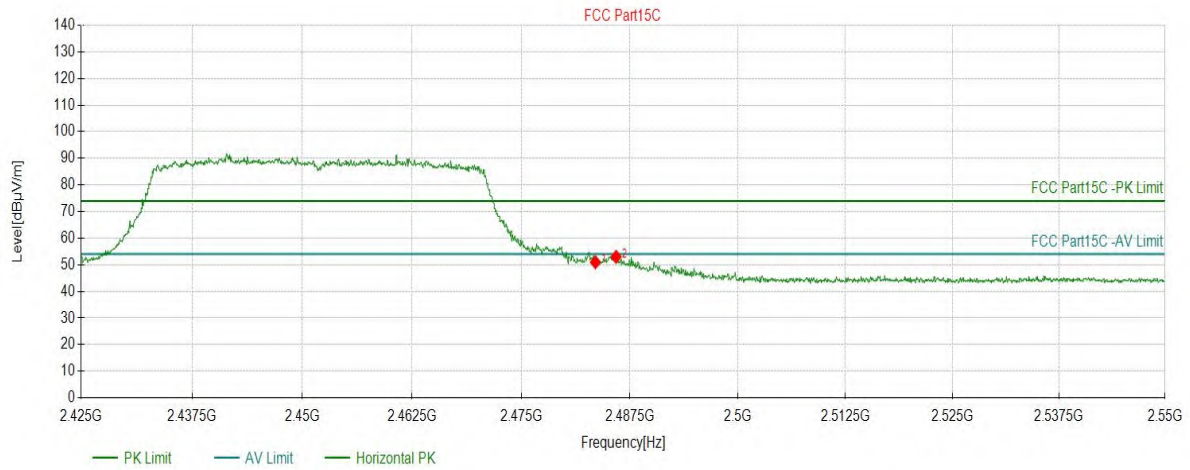
Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2388.1460	49.94	5.66	74.00	24.06	150	227	PK	Vertical
2	2390.0367	48.01	5.65	74.00	25.99	150	80	PK	Vertical

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX40_2452	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

Start of Test: 2023-06-29 11:13:53

Test Graph



Suspected Data List

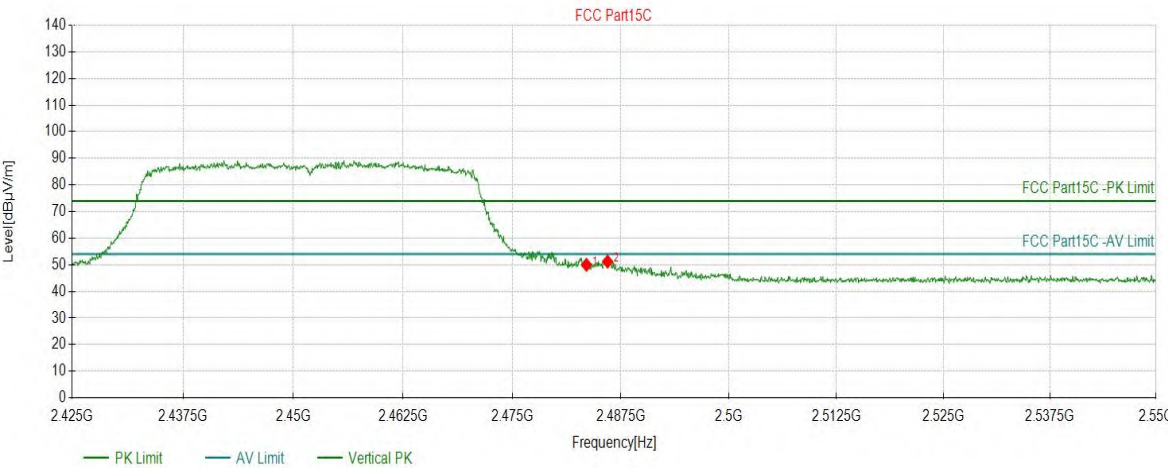
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5293	50.94	6.37	74.00	23.06	150	354	PK	Horizont
2	2485.9055	52.98	6.39	74.00	21.02	150	6	PK	Horizont

Test Report

Project Information			
EUT:	Clevershare Hub Clever Hub	Environment:	24.2℃ 54%
Model:	CleverHub	SN:	
Mode:	11AX40_2452	Voltage:	120V 60Hz
Customer:		Engineer:	Roger
Remark:			

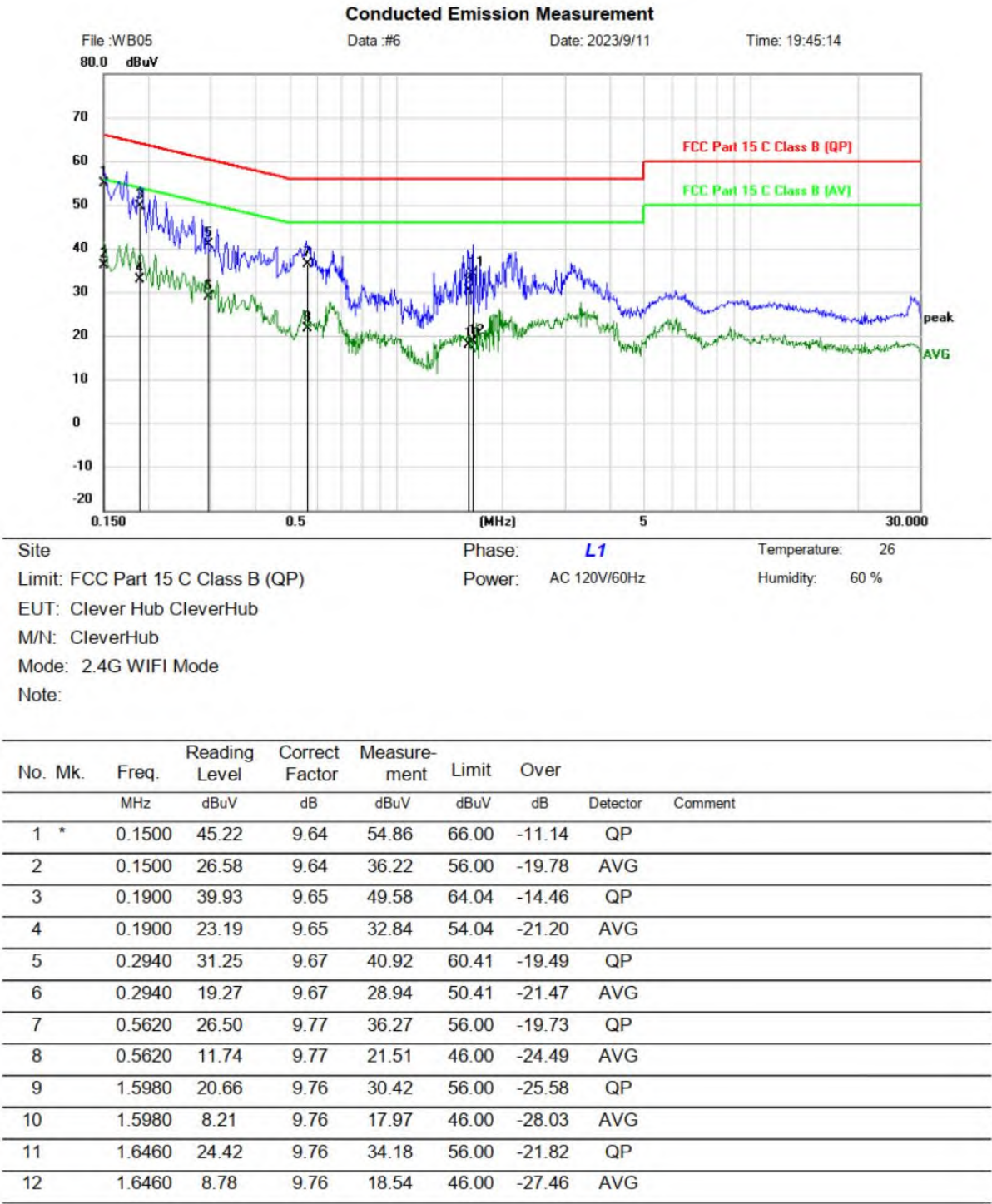
Start of Test: 2023-06-29 11:14:37

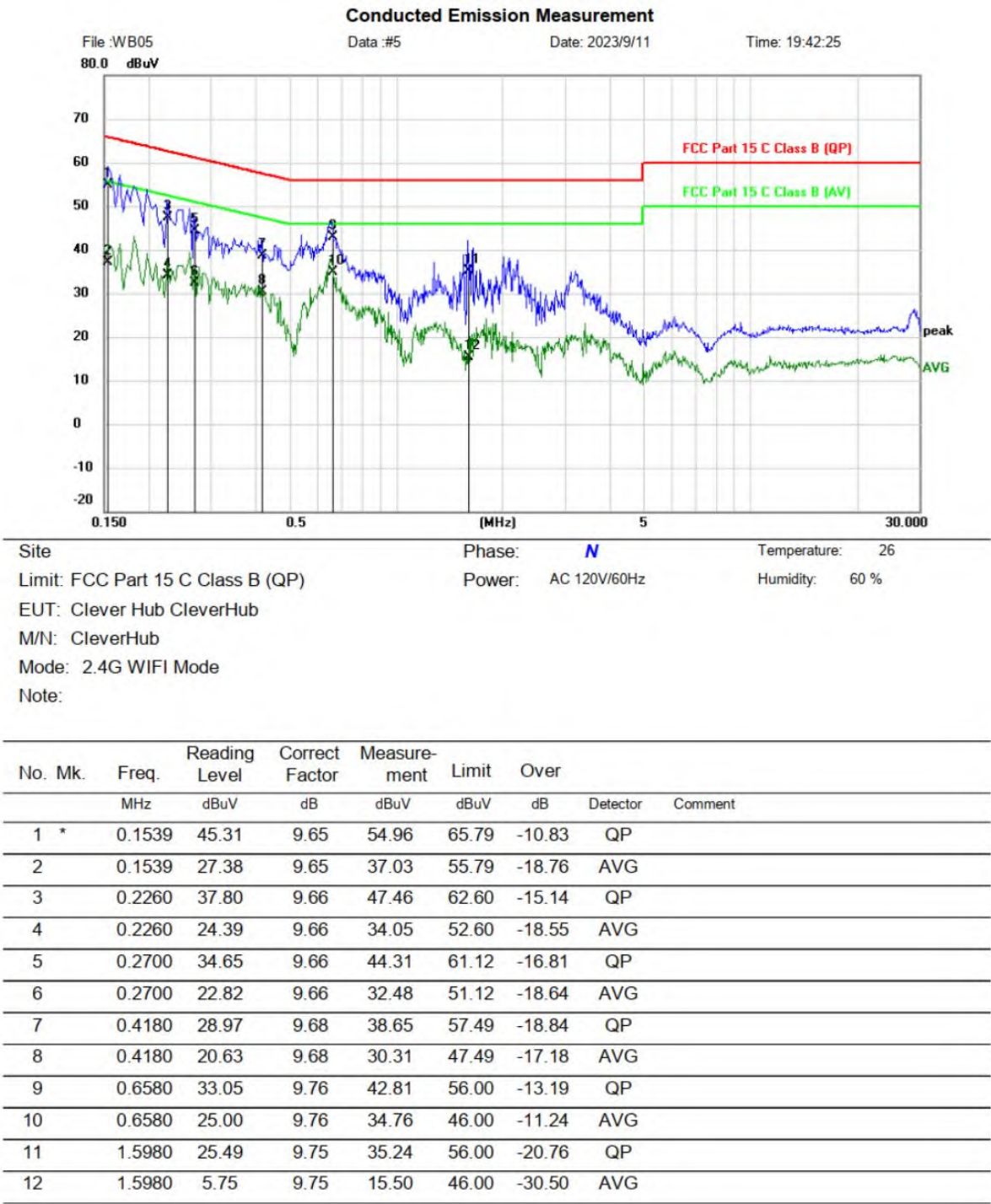
Test Graph



Suspected Data List									
NO.	Freq. (MHz)	Level (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Angle (°)	Detector	Polarity
1	2483.5293	50.00	6.28	74.00	24.00	150	124	PK	Vertical
2	2485.9680	51.20	6.30	74.00	22.80	150	228	PK	Vertical

APPENDIX C – AC Power Line Conducted Emission Test Data





END OF REPORT