


# TEST REPORT

For FCC Part15B



Report No. ....: **CHTEW23110052** Report verification: 

Project No. ....: **SHT2310045701EW**

FCC ID.....: **2BCINEC2**

Applicant's name.....: **SENTRY CS LTD**

Address.....: **5 Derech Hashalom, Tel Aviv, Israel**

Product Name .....: **Eclipse II (Drone tracking system)**

Trade Mark .....: -

Model No. ....: **CVX-EC2-BU (Antenna model: CVX-EC2-D-ANT)**

Listed Model(s) .....: -

Standard .....: **FCC CFR Title 47 Part 15 Subpart B**

Date of receipt of test sample.....: **Apr.06, 2023**

Date of testing.....: **Apr.06, 2023-Aug.23, 2023**

Date of issue.....: **Nov. 14, 2023**

Result.....: **Pass**

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Testing Laboratory Name .....: **Shenzhen Huatongwei International Inspection Co., Ltd.**

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*The test report merely corresponds to the test sample.*

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## 1. TEST STANDARDS AND REPORT VERSION

### 1.1. Test Standards

The tests were performed according to following standards:

[FCC CFR Title 47 Part 15 Subpart B](#) - Unintentional Radiators

[ANSI C63.4: 2014](#) – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz

### 1.2. Report version information

Revision No.	Date of issue	Description
N/A	2023-11-14	Original

## 2. TEST DESCRIPTION

Section	Test Item	Section in CFR 47	Result #1	Test Engineer
5.1	Conducted Emissions	15.107(a)	PASS	Junman Wang
5.2	Radiated Emissions	15.109(a)	PASS	Yifan Wang

Note:

#1: The test result does not include measurement uncertainty value

### 3. SUMMARY

#### 3.1. Client Information

Applicant:	SENTRY CS LTD
Address:	5 Derech Hashalom, Tel Aviv, Israel
Manufacturer:	SENTRY CS LTD
Address:	5 Derech Hashalom, Tel Aviv, Israel

#### 3.2. Product Description

Main unit information:	
Product Name:	Eclipse II (Drone tracking system)
Trade Mark:	-
Model No.:	CVX-EC2-BU (Antenna model: CVX-EC2-D-ANT)
Listed Model(s):	-
Power supply:	AC 100-240V 50Hz/60Hz
Test voltage:	AC 120V 60Hz
Hardware version:	Eclipse II
Software version:	Eclipse II

#### 3.3. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China	
Contact information:	Tel: 86-755-26715499 E-mail: <a href="mailto:cs@szhtw.com.cn">cs@szhtw.com.cn</a> <a href="http://www.szhtw.com.cn">http://www.szhtw.com.cn</a>	
Qualifications	Type	Accreditation Number
	FCC	762235

## 4. TEST CONFIGURATION

### 4.1. Descriptions of test mode

Test mode	Description
WIFI 2.4& SDR 2.4 &LTE 4G	Keep WIFI 2.4& SDR 2.4 &LTE 4G in communication simultaneously
WIFI 5.8& SDR 5.8 &LTE 4G	Keep WIFI 5.8& SDR 5.8 &LTE 4G in communication simultaneously
WIFI 2.4& SDR 5.8 &LTE 4G	Keep WIFI 2.4& SDR 5.8 &LTE 4G in communication simultaneously
WIFI 5.8& SDR 2.4 &LTE 4G	Keep WIFI 5.8& SDR 2.4 &LTE 4G in communication simultaneously

Pre-scan above all test mode, found below test mode which it was worse case mode, so only show the test data for worse case mode on the test report

Test Item	Test mode for worse case
Conducted Emissions	WIFI 2.4& SDR 2.4 &LTE 4G
Radiated Emissions	WIFI 2.4& SDR 2.4 &LTE 4G

### 4.2. Support unit used in test configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Whether support unit is used?			
✓ No			
Item	Equipment	Trade Name	Model No.
1	-	-	-
2	-	-	-

### 4.3. Environmental conditions

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

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

### 4.4. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	AC Conducted Emission	3.21dB
2	Radiated Emission	4.54dB for 30MHz-1GHz 5.10dB for above 1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

#### 4.5. Equipments Used during the Test

##### ● Conducted Emission

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Shielded Room	Albatross projects	HTWE0114	N/A	N/A	2018/09/28	2023/09/27
●	EMI Test Receiver	R&S	HTWE0111	ESCI	101247	2022/08/30	2023/08/29
●	Artificial Mains	SCHWARZBECK	HTWE0113	NNLK 8121	573	2022/08/29	2023/08/28
●	Pulse Limiter	R&S	HTWE0193	ESH3-Z2	101447	2022/08/29	2023/08/28
●	RF Connection Cable	HUBER+SUHNER	HTWE0113-02	ENVIROFLEX 142	EF-NM-BNCM-2M	2022/09/17	2023/09/16
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

##### ● Radiated Emission-Below 1GHz

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2018/09/30	2023/09/29
●	EMI Test Receiver	R&S	HTWE0099	ESCI	100900	2022/08/30	2023/08/29
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0547	VULB9163	945	2022/05/23	2025/05/22
●	Pre-Amplifier	SCHWARZBECK	HTWE0295	BBV 9742	N/A	2022/11/04	2023/11/03
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-01	N/A	N/A	2023/02/24	2024/02/23
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-02	SUCOFLEX104	501184/4	2023/02/24	2024/02/23
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

##### ● Radiated emission-Above 1GHz

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	C11121	2018/09/27	2023/09/26
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2022/08/25	2023/08/24
●	Horn Antenna	ETS	HTWE0548	3117	240120	2022/05/20	2025/05/19
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2023/02/27	2024/02/26
●	RF Connection Cable	HUBER+SUHNER	HTWE0126-01	RE-7-FH	N/A	2023/02/27	2024/02/26
●	Test Software	Audix	N/A	E3	N/A	N/A	N/A

##### ● Auxiliary Equipment

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
○	Radio communication tester	R&S	HTWE0287	CMW500	137688-Lv	2022/08/25	2023/08/24
○	RF Communication Test Set	HP	HTWE0038	8920A	3813A10206	2022/08/25	2023/08/24
○	Digital intercom communication tester	Aeroflex	HTWE0255	3920B	1001682041	2022/08/25	2023/08/24

## 5. TEST CONDITIONS AND RESULTS

### 5.1. Conducted Emissions

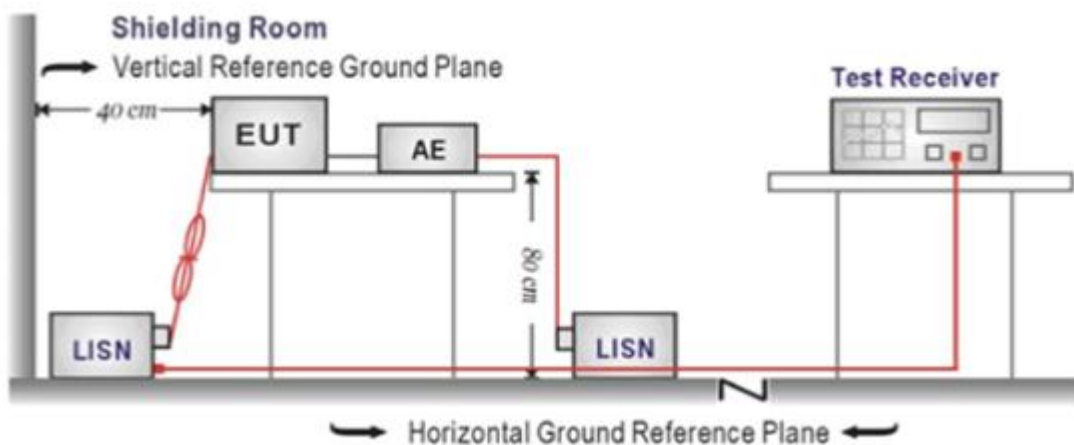
#### LIMIT

FCC CFR Title 47 Part 15 Subpart B Section 15.107:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. The EUT was setup according to ANSI C63.4:2014
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

#### TEST MODE:

Please refer to the clause 3.3

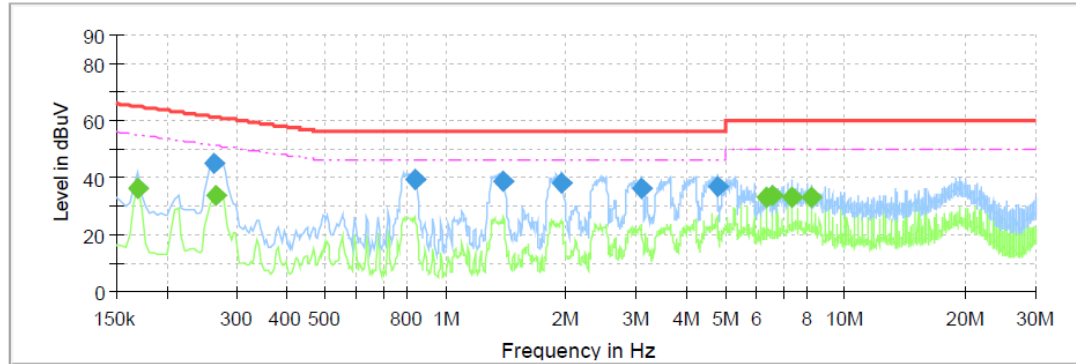
#### TEST RESULTS

☒ Passed ☐ Not Applicable



Test Line:

L

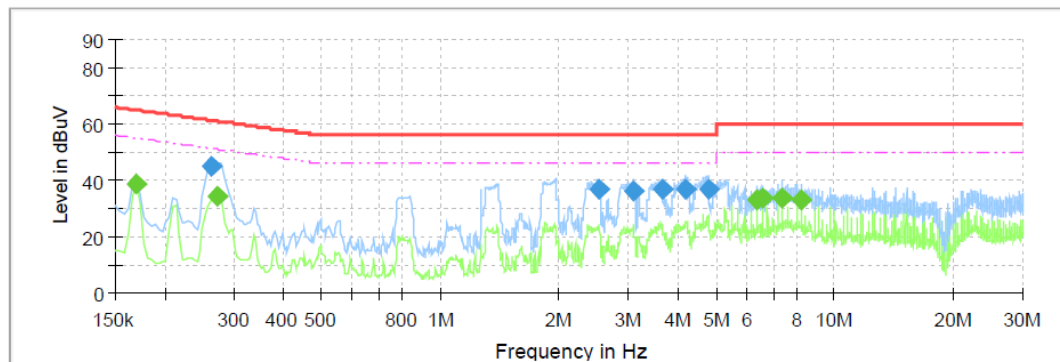


### Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.1700	---	36.29	54.96	18.67	L1	10.0
0.2635	44.72	---	61.32	16.60	L1	10.0
0.2675	---	33.52	51.20	17.67	L1	10.0
0.8355	39.57	---	56.00	16.43	L1	10.0
1.3955	38.79	---	56.00	17.21	L1	10.0
1.9595	38.17	---	56.00	17.83	L1	10.0
3.0875	36.21	---	56.00	19.79	L1	10.0
4.7715	36.73	---	56.00	19.27	L1	10.0
6.3315	---	32.94	50.00	17.06	L1	10.1
6.5435	---	34.04	50.00	15.96	L1	10.1
7.3875	---	33.41	50.00	16.59	L1	10.1
8.2315	---	33.20	50.00	16.80	L1	10.2

Test Line:

N



### Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.1700	---	38.59	54.96	16.37	N	10.0
0.2635	45.10	---	61.32	16.22	N	10.0
0.2715	---	34.31	51.07	16.76	N	10.0
2.5235	36.82	---	56.00	19.18	N	10.0
3.0875	36.52	---	56.00	19.48	N	10.0
3.6515	36.88	---	56.00	19.12	N	10.0
4.2085	37.03	---	56.00	18.97	N	10.0
4.7835	36.86	---	56.00	19.14	N	10.0
6.3315	---	32.99	50.00	17.01	N	10.1
6.5435	---	33.96	50.00	16.04	N	10.1
7.3875	---	33.53	50.00	16.47	N	10.1
8.2315	---	33.15	50.00	16.85	N	10.2

## 5.2. Radiated Emissions

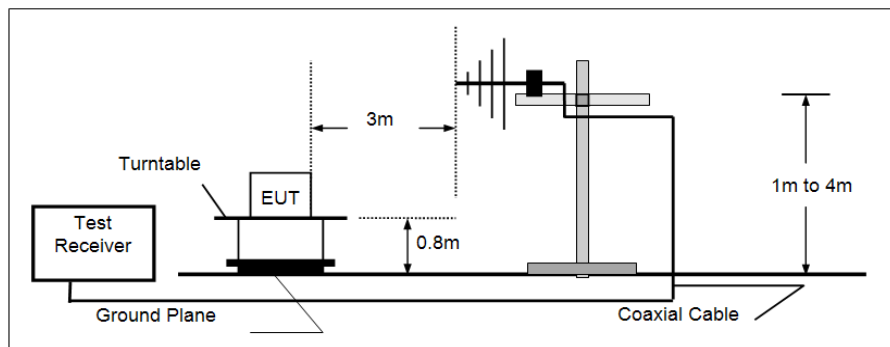
### LIMIT

#### FCC CFR Title 47 Part 15 Subpart B Section 15.109

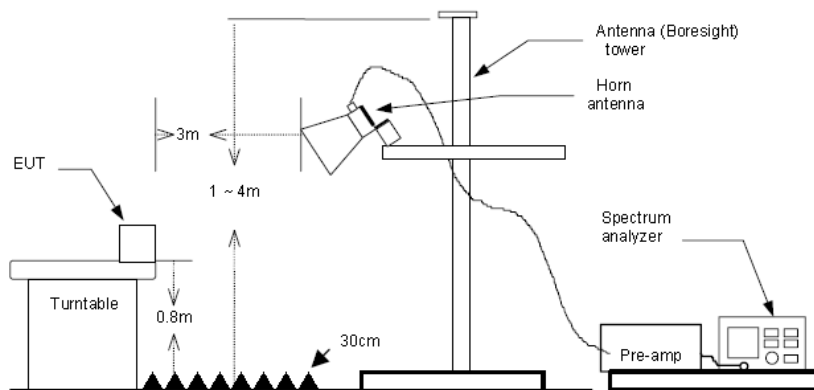
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

### TEST CONFIGURATION

#### ➤ 30MHz ~ 1GHz



#### ➤ Above 1GHz



### TEST PROCEDURE

- The EUT was tested according to ANSI C63.4:2014.
- The EUT is placed on a turn table which is 0.8 meter above ground.
- The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
- The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
- Use the following spectrum analyzer settings
  - Span shall wide enough to fully capture the emission being measured;
  - Below 1GHz,  
RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold;  
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.
  - From 1GHz to 5th harmonic, RBW=1MHz, VBW=3MHz

**TEST MODE:**

Please refer to the clause 3.3

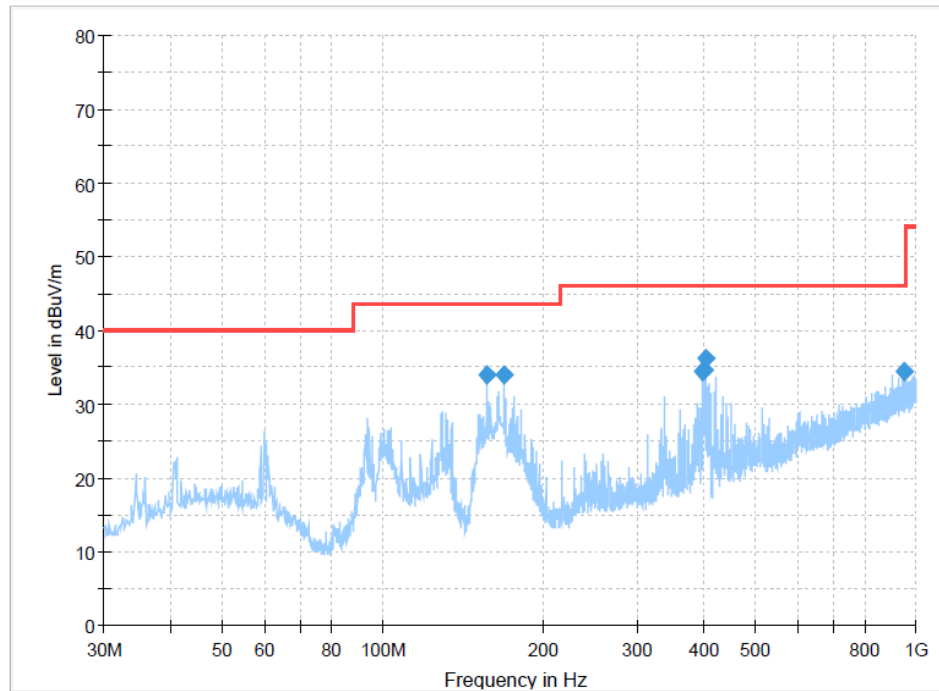
**TEST RESULTS**

☒ **Passed**      ☐ **Not Applicable**

Note: Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor  
The emission levels of frequency above 6GHz are very lower than limit and not show in test report.

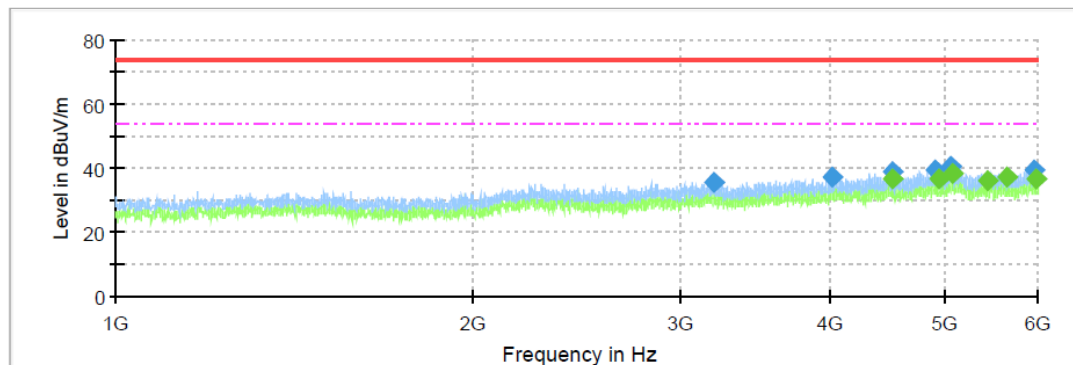
Polarization:

Horizontal



### Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
156.9488	33.95	43.50	9.55	100.0	H	305.0	-13.8
168.5888	33.87	43.50	9.63	300.0	H	272.0	-13.4
398.8425	34.34	46.00	11.66	100.0	H	0.0	-4.5
400.5400	34.65	46.00	11.35	100.0	H	0.0	-4.4
402.1163	36.21	46.00	9.79	100.0	H	0.0	-4.4
948.4688	34.31	46.00	11.69	100.0	H	126.0	7.1

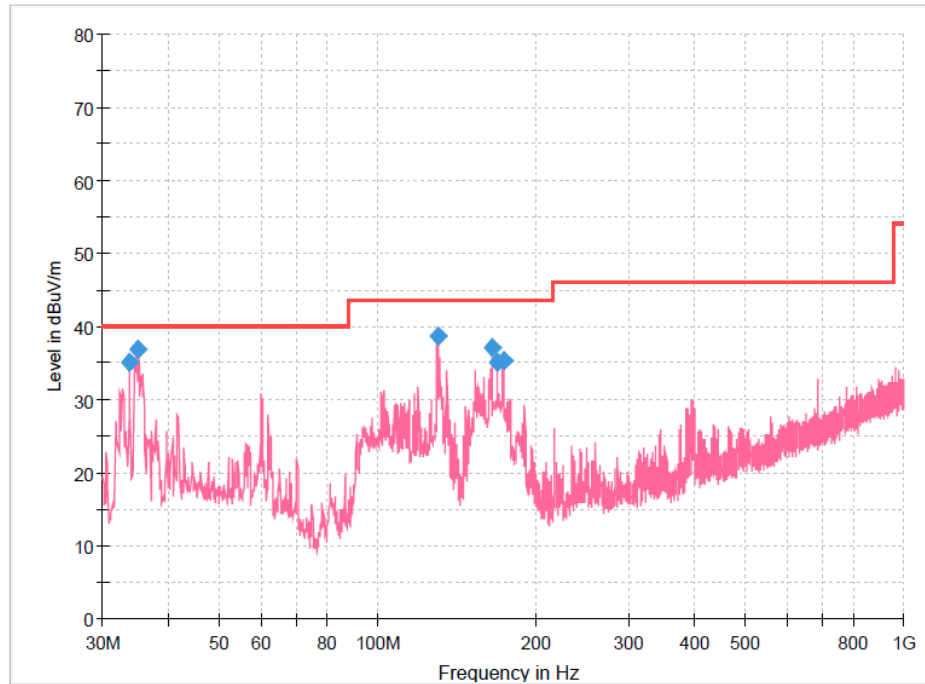


### Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3199.375000	35.57	---	74.00	38.43	150.0	H	27.0	-3.8
4028.750000	37.49	---	74.00	36.51	150.0	H	231.0	-1.6
4521.875000	---	36.53	54.00	17.47	150.0	H	12.0	0.3
4521.875000	39.08	---	74.00	34.92	150.0	H	12.0	0.3
4915.625000	39.51	---	74.00	34.49	150.0	H	0.0	1.5
4953.125000	---	36.94	54.00	17.06	150.0	H	73.0	1.6
5057.500000	40.54	---	74.00	33.46	150.0	H	266.0	2.4
5088.750000	---	38.45	54.00	15.55	150.0	H	290.0	2.5
5443.125000	---	36.06	54.00	17.94	150.0	H	172.0	3.0
5653.750000	---	37.22	54.00	16.78	150.0	H	336.0	3.0
5963.125000	39.41	---	74.00	34.59	150.0	H	128.0	3.8
5983.125000	---	36.70	54.00	17.30	150.0	H	57.0	4.1

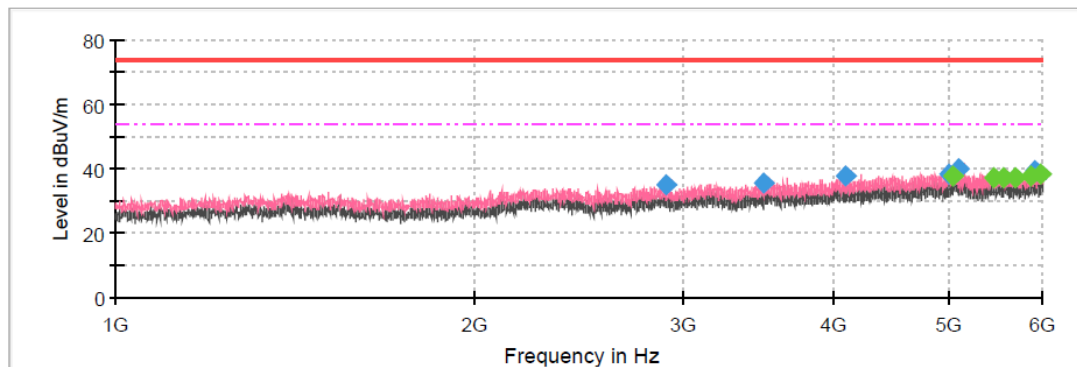
Polarization:

Vertical



### Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
33.7588	35.14	40.00	4.86	100.0	V	41.0	-12.3
35.0925	36.79	40.00	3.21	100.0	V	310.0	-11.7
129.9100	38.65	43.50	4.85	100.0	V	322.0	-13.9
164.8300	36.99	43.50	6.51	100.0	V	330.0	-13.7
168.8313	35.08	43.50	8.42	100.0	V	322.0	-13.4
173.3175	35.30	43.50	8.20	100.0	V	357.0	-13.1



### Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2897.500000	34.92	---	74.00	39.08	150.0	V	312.0	-4.4
3496.875000	35.30	---	74.00	38.70	150.0	V	282.0	-3.4
4096.250000	37.58	---	74.00	36.42	150.0	V	24.0	-1.4
5001.250000	38.50	---	74.00	35.50	150.0	V	291.0	1.8
5043.750000	---	37.55	54.00	16.45	150.0	V	163.0	2.3
5107.500000	39.75	---	74.00	34.25	150.0	V	157.0	2.7
5463.750000	---	37.19	54.00	16.81	150.0	V	0.0	3.1
5567.500000	---	37.38	54.00	16.62	150.0	V	44.0	2.9
5698.125000	---	37.08	54.00	16.92	150.0	V	163.0	3.1
5870.000000	---	37.73	54.00	16.27	150.0	V	237.0	3.9
5901.875000	39.55	---	74.00	34.45	150.0	V	142.0	4.1
5978.125000	---	38.30	54.00	15.70	150.0	V	276.0	4.0

## **6. TEST SETUP PHOTOS OF THE EUT**

Please refer to Appendix A

## **7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT**

Refer to the test report No.: CHTEW23110047

-----End of Report-----