



FCC Radio Test Report

FCC ID: 2BCGWC500V2

This report concerns: Original Grant

Project No. : 2405G026
Equipment : Outdoor Pan/Tilt Security Wi-Fi Camera
Brand Name : tp-link
Test Model : Tapo C500
Series Model : Tapo C510W
Applicant : TP-LINK CORPORATION PTE. LTD.
Address : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987
Manufacturer : TP-LINK CORPORATION PTE. LTD.
Address : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987
Date of Receipt : May 10, 2024
Date of Test : Jun. 14, 2024 ~ Jul. 11, 2024
Issued Date : Jul. 29, 2024
Report Version : R00
Test Sample : Engineering Sample No.: SSL20240510229 for Radiated and AC
Power Line Conducted Emissions, SSL20240510228 for other items.
Standard(s) : FCC CFR Title 47, Part 15, Subpart C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by :

Nick Chen

Nick Chen

Approved by :

Chay . Cai

Chay Cai

Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong,
People's Republic of China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

Service mail: btl_qa@newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by **BTL**.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

Table of Contents	Page
REPORT ISSUED HISTORY	6
1 . APPLICABLE STANDARDS	7
2 . SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
2.3 TEST ENVIRONMENT CONDITIONS	9
3 . GENERAL INFORMATION	10
3.1 GENERAL DESCRIPTION OF EUT	10
3.2 DESCRIPTION OF TEST MODES	11
3.3 PARAMETERS OF TEST SOFTWARE	12
3.4 DUTY CYCLE	13
3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	14
3.6 SUPPORT UNITS	14
3.7 CUSTOMER INFORMATION DESCRIPTION	14
4 . AC POWER LINE CONDUCTED EMISSIONS	15
4.1 LIMIT	15
4.2 TEST PROCEDURE	15
4.3 DEVIATION FROM TEST STANDARD	15
4.4 TEST SETUP	16
4.5 EUT OPERATION CONDITIONS	16
4.6 TEST RESULTS	16
5 . RADIATED EMISSIONS	17
5.1 LIMIT	17
5.2 TEST PROCEDURE	18
5.3 DEVIATION FROM TEST STANDARD	19
5.4 TEST SETUP	19
5.5 EUT OPERATION CONDITIONS	21
5.6 TEST RESULTS - 9 KHZ TO 30 MHZ	21
5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ	21
5.8 TEST RESULTS - ABOVE 1000 MHZ	21
6 . BANDWIDTH	22
6.1 LIMIT	22
6.2 TEST PROCEDURE	22

Table of Contents	Page
6.3 DEVIATION FROM STANDARD	22
6.4 TEST SETUP	22
6.5 EUT OPERATION CONDITIONS	22
6.6 TEST RESULTS	22
7 . MAXIMUM OUTPUT POWER	23
7.1 LIMIT	23
7.2 TEST PROCEDURE	23
7.3 DEVIATION FROM STANDARD	23
7.4 TEST SETUP	23
7.5 EUT OPERATION CONDITIONS	23
7.6 TEST RESULTS	23
8 . CONDUCTED SPURIOUS EMISSIONS	24
8.1 LIMIT	24
8.2 TEST PROCEDURE	24
8.3 DEVIATION FROM STANDARD	24
8.4 TEST SETUP	24
8.5 EUT OPERATION CONDITIONS	24
8.6 TEST RESULTS	24
9 . POWER SPECTRAL DENSITY	25
9.1 LIMIT	25
9.2 TEST PROCEDURE	25
9.3 DEVIATION FROM STANDARD	25
9.4 TEST SETUP	25
9.5 EUT OPERATION CONDITIONS	25
9.6 TEST RESULTS	25
10 . MEASUREMENT INSTRUMENTS LIST	26
11 . EUT TEST PHOTO	28
APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS	34
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ	37
APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	42
APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ	45
APPENDIX E - BANDWIDTH	66
APPENDIX F - MAXIMUM OUTPUT POWER	70

Table of Contents**Page****APPENDIX G - CONDUCTED SPURIOUS EMISSIONS****72****APPENDIX H - POWER SPECTRAL DENSITY****79**

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2405G026	R00	Original Report.	Jul. 29, 2024	Valid

1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of A2LA:

KDB 558074 D01 15.247 Meas Guidance v05r02

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.247(a)(2)	Bandwidth	APPENDIX E	PASS	-----
15.247(b)(3)	Maximum Output Power	APPENDIX F	PASS	-----
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS	-----
15.247(e)	Power Spectral Density	APPENDIX H	PASS	-----
15.203	Antenna Requirement	-----	PASS	Note(2)

Note:

(1) "N/A" denotes test is not applicable in this test report.

(2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Dalang, Dongguan City, Guangdong People's Republic of China.

BTL's Registration Number for FCC: 747969

BTL's Designation Number for FCC: CN1377

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95.45% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.88

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.40
		30MHz ~ 200MHz	H	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	H	3.98

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.08
		6GHz ~ 18GHz	4.62

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 (1m)	CISPR	18 ~ 26.5 GHz	3.36

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	0.90 %
Maximum Output Power	1.3 dB
Conducted Spurious Emission	1.9 dB
Power Spectral Density	1.4 dB
Temperature	0.8 °C
Humidity	2.2 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
AC Power Line Conducted Emissions	25°C	46%	AC 120V/60Hz	Hayden Chen	Jun. 28, 2024
Radiated Emissions -9kHz to 30 MHz	22°C	52%	AC 120V/60Hz	Hayden Chen	Jun. 28, 2024
Radiated Emissions -30MHz to 1000MHz	24°C	56%	AC 120V/60Hz	Allen Tong	Jun. 27, 2024
Radiated Emissions -Above 1000MHz	24°C	56%	AC 120V/60Hz	Allen Tong	Jun. 27, 2024
	24°C	46%	AC 120V/60Hz	Jensen Zhou	Jun. 28, 2024
Bandwidth	22°C	41%	DC 9V	Arvin Tong	Jun. 27, 2024
Maximum Output Power	25°C	42%	DC 9V	Oliver Wang	Jun. 26, 2024
Conducted Spurious Emissions	22°C	41%	DC 9V	Arvin Tong	Jun. 27, 2024
Power Spectral Density	20°C	45%	DC 9V	Arvin Tong	Jun. 26, 2024

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Outdoor Pan/Tilt Security Wi-Fi Camera
Brand Name	tp-link
Test Model	Tapo C500
Series Model	Tapo C510W
Model Difference(s)	The chips are different, model Tapo C500 chip is SC2336P, model C510W chip is SC3336P, with differences in resolution.
Software Version	2.X
Hardware Version	2.0
Power Source	DC Voltage supplied from AC adapter. Model: T090085-2B1
Power Rating	I/P:100-240V ~ 50/60Hz 0.3A O/P:9V --- 0.85A
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 144.4 Mbps
Maximum Output Power	IEEE 802.11n(HT20): 19.56 dBm (0.0904 W)

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Antenna Specification:

Ant.	Manufacturer	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK CORPORATION PTE. LTD.	C500-Ant1	Monopole	N/A	0.5
2	TP-LINK CORPORATION PTE. LTD.	C500-Ant2	Monopole	N/A	0.5

Note:

- This EUT supports 1TX, but there are two mirror antennas inside the prototype, which will be intelligently switched to the antenna with strong signal when used.

3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11
Mode 4	TX N(HT20) Mode Channel 06

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 4	TX N(HT20) Mode Channel 06

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 4	TX N(HT20) Mode Channel 06

Radiated emissions test- Above 1GHz	
Final Test Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11

Conducted test	
Final Test Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11

NOTE:

- (1) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (2) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX N(HT20) Mode Channel 06 is found to be the worst case and recorded.
- (3) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (4) For radiated emission Harmonic 18-26.5GHz test, only tested the worst case and recorded.
- (5) There are two mirror antennas inside the prototype, which will be intelligently switched to the antenna with strong signal when used.
- (6) For radiated emissions below 1 GHz test, all models had been evaluated. It was found that model Tapo C500 was worst case and recorded in this report.
- (7) For radiated emission above 1GHz test, both Vertical and Horizontal are evaluated, only the worst case is recorded.

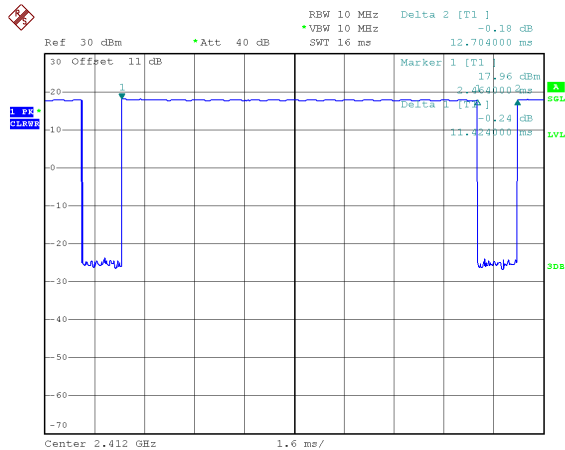
3.3 PARAMETERS OF TEST SOFTWARE

Test Software Version	altobeamWifi ETF_V2.10.103		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	12	12	12
IEEE 802.11g	14.5	14.5	14.5
IEEE 802.11n(HT20)	14.5	14.5	14.5

3.4 DUTY CYCLE

If duty cycle is $\geq 98\%$, duty factor is not required.
 If duty cycle is $< 98\%$, duty factor shall be considered.
 The output power = measured power + duty factor.

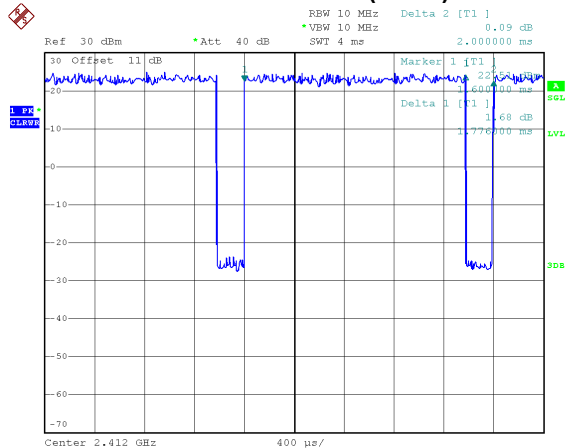
IEEE 802.11b



Date: 27.JUN.2024 10:12:19

Duty cycle = $11.424 \text{ ms} / 12.704 \text{ ms} = 89.92\%$
 Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.46$

IEEE 802.11n(HT20)



Date: 27.JUN.2024 10:15:56

Duty cycle = $1.776 \text{ ms} / 2.000 \text{ ms} = 88.80\%$
 Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.52$

NOTE:

For IEEE 802.11b:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 88 Hz.

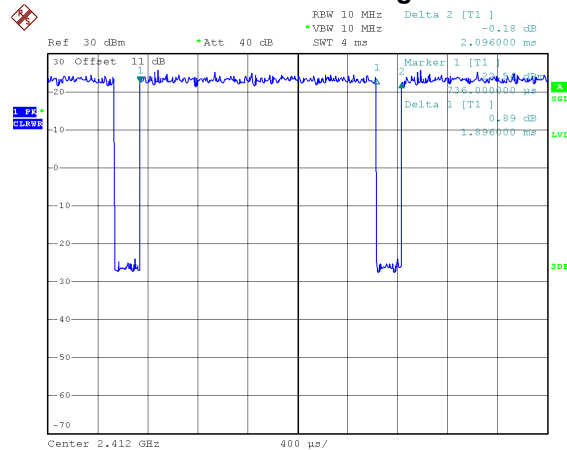
For IEEE 802.11g:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 527 Hz.

For IEEE 802.11n(HT20):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 563 Hz.

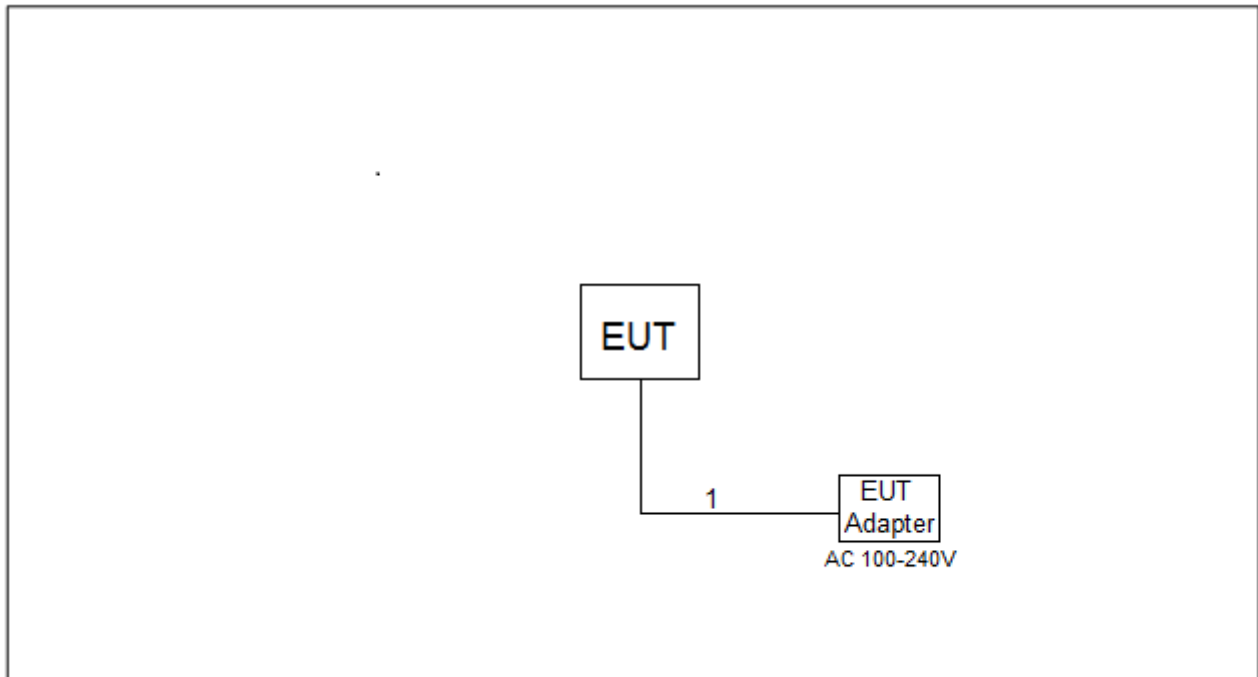
IEEE 802.11g



Date: 27.JUN.2024 10:12:38

Duty cycle = $1.896 \text{ ms} / 2.096 \text{ ms} = 90.46\%$
 Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.44$

3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m

3.7 CUSTOMER INFORMATION DESCRIPTION

- 1) The antenna gain is provided by the manufacturer.
- 2) Except for AC power line conducted emissions and radiated emissions, the results of all test items include cable losses. All cable losses are provided by the testing laboratory.

4. AC POWER LINE CONDUCTED EMISSIONS

4.1 LIMIT

Frequency of Emission (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

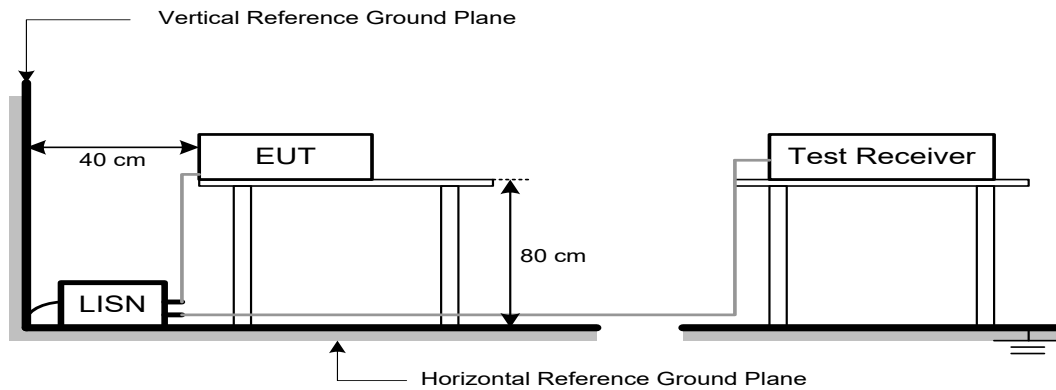
The following table is the setting of the receiver:

Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS

Please refer to the APPENDIX A.

5. RADIATED EMISSIONS

5.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Band edge/ Harmonic at 3m (dBμV/m)		Harmonic at 1m (dBμV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	83.5 (Note 4)	63.5 (Note 4)

NOTE:

- (1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4)

$$FS_{\text{limit}} = FS_{\text{max}} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

$$20\log(d_{\text{limit}}/d_{\text{measure}})=20\log(3/1)=9.5\text{ dB.}$$

5.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance of 3 m or 1m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1 MHz / 3 MHz for PK value 1 MHz / 1/T Hz for AVG value

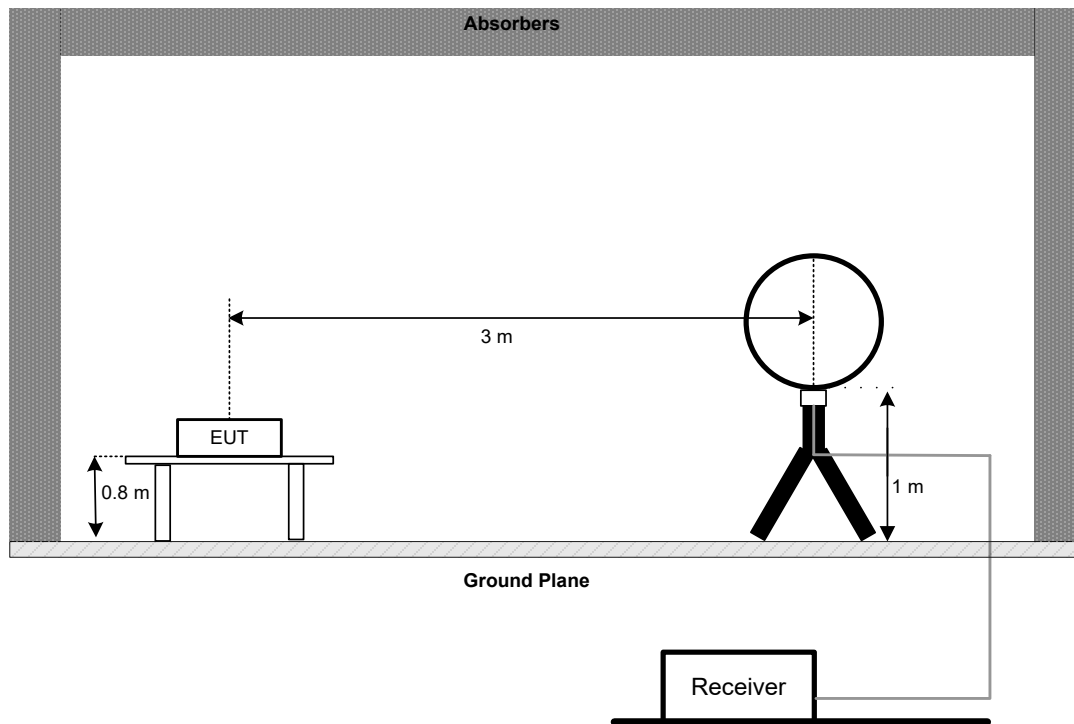
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

5.3 DEVIATION FROM TEST STANDARD

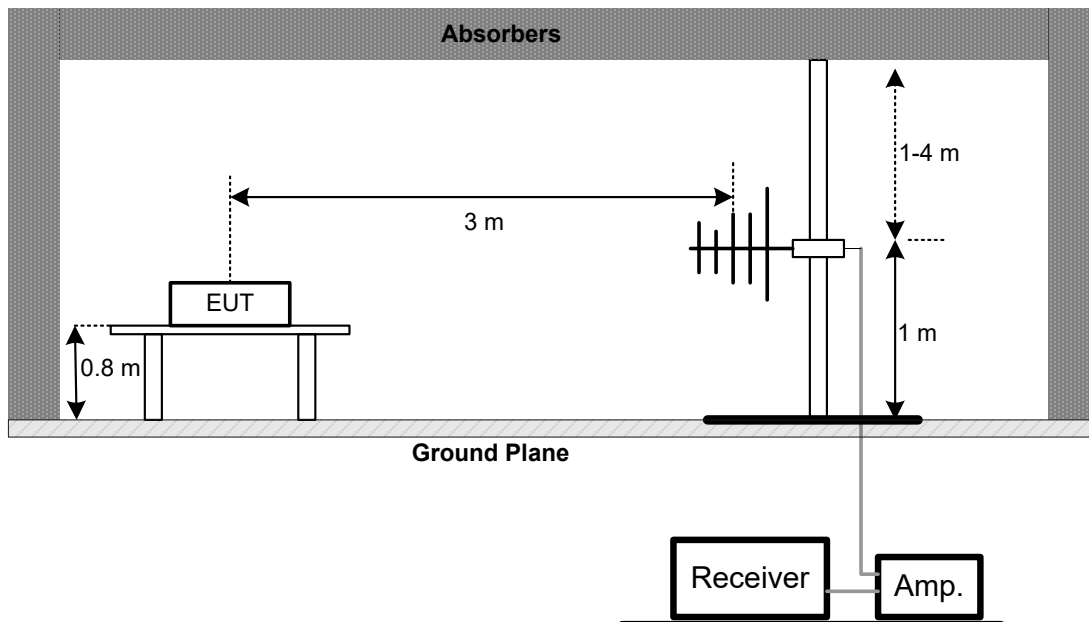
No deviation.

5.4 TEST SETUP

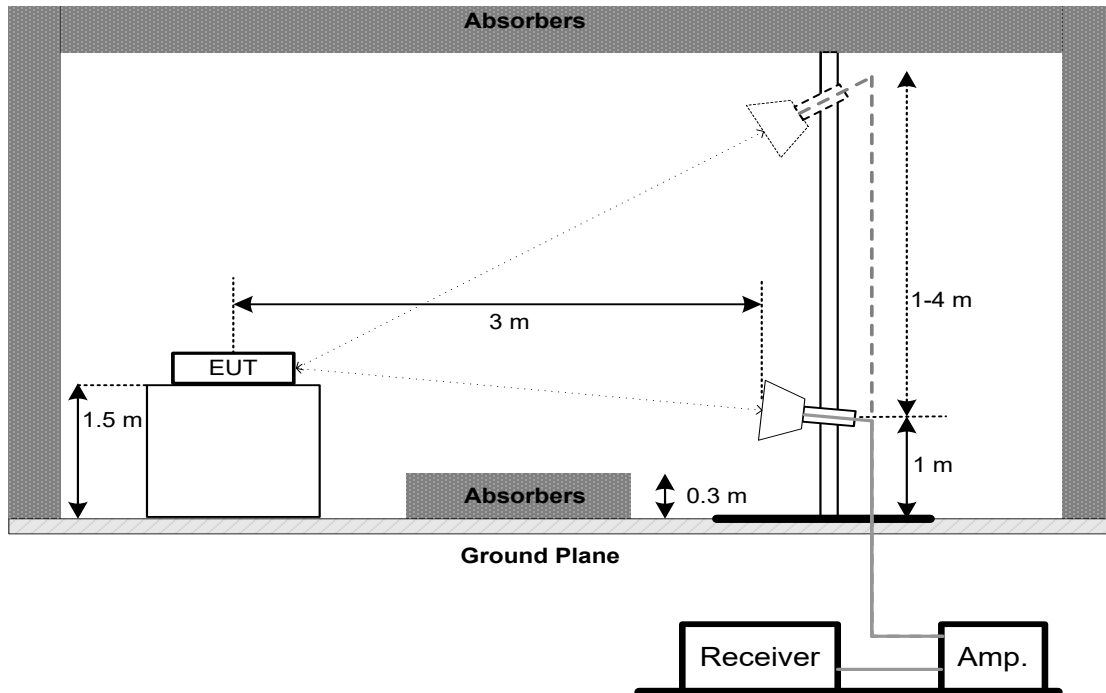
9 kHz to 30 MHz



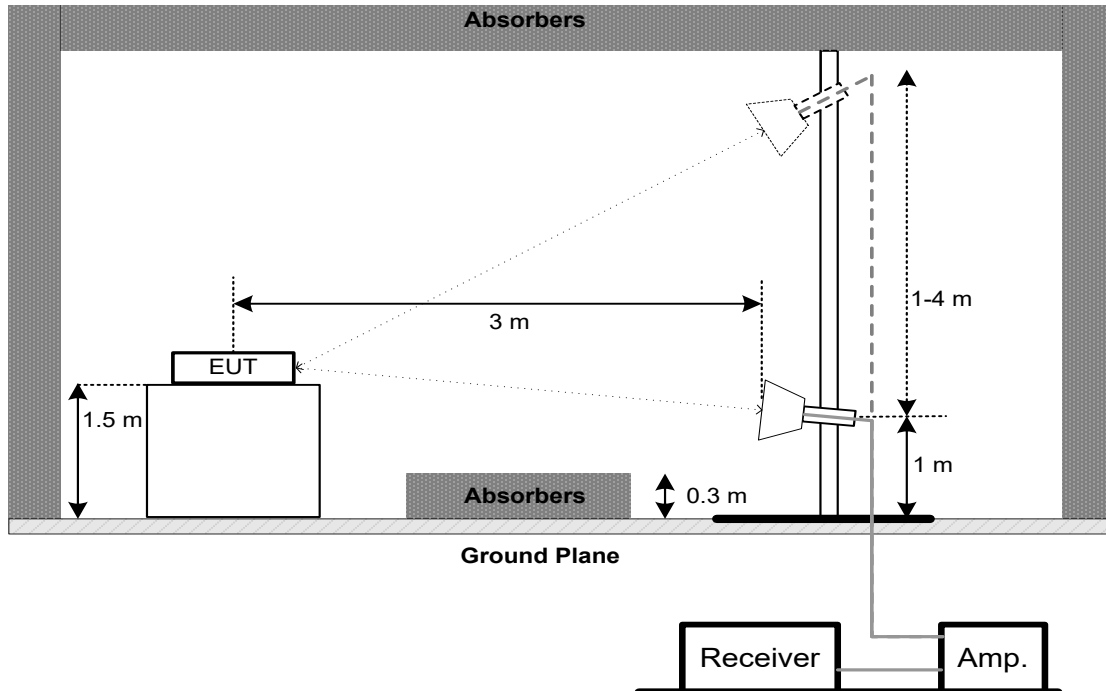
30 MHz to 1 GHz



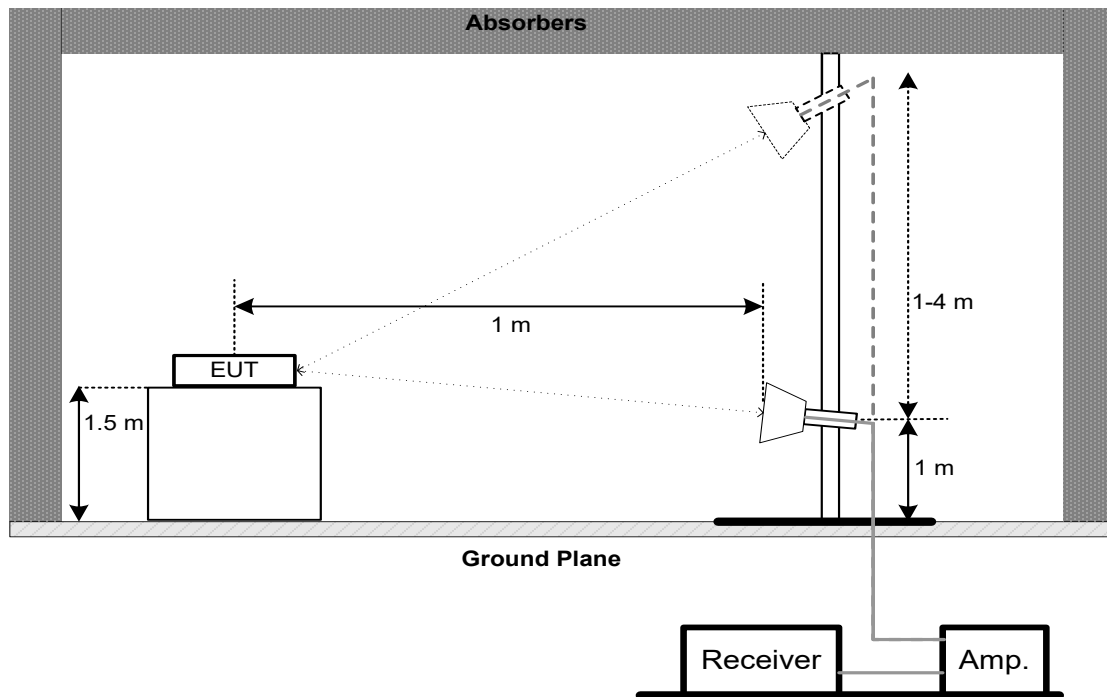
Above 1 GHz Band edge



Harmonic(1 GHz to 18 GHz)



Harmonic(18 GHz to 26.5 GHz)



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B.

Remark:

- (1) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

5.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

6. BANDWIDTH

6.1 LIMIT

Section	Test Item	Limit
FCC 15.247(a)(2)	6 dB Bandwidth	Minimum 500 kHz
	99% Emission Bandwidth	-

6.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

For 6 dB Bandwidth:

Spectrum Parameters	Setting
Span Frequency	> Measurement Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For 99% Emission Bandwidth:

Spectrum Parameters	Setting
Span Frequency	Between 1.5 times and 5.0 times the OBW
RBW	300 kHz For 20MHz 1 MHz For 40MHz
VBW	1 MHz For 20MHz 3 MHz For 40MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX E.

7. MAXIMUM OUTPUT POWER

7.1 LIMIT

Section	Test Item	Limit
FCC 15.247(b)(3)	Maximum Output Power	1.0000 Watt or 30.00 dBm

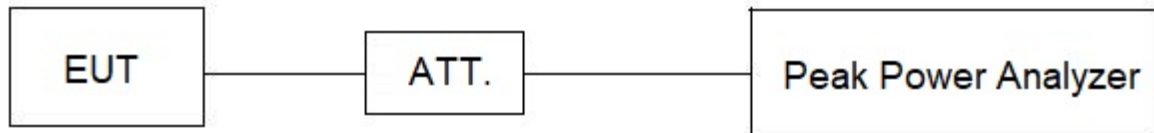
7.2 TEST PROCEDURE

- The EUT was directly connected to the peak power analyzer and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.2.3.1 of ANSI C63.10-2013.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX F.

8. CONDUCTED SPURIOUS EMISSIONS

8.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

For Reference Level:

Spectrum Parameters	Setting
Span Frequency	≥ 1.5 times the bandwidth.
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For Emission Level:

Spectrum Parameters	Setting
Start Frequency	30 MHz
Stop Frequency	26.5 GHz
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX G.

9. POWER SPECTRAL DENSITY

9.1 LIMIT

Section	Test Item	Limit
FCC 15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)

9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	25 MHz (20 MHz) / 60 MHz (40 MHz)
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 TEST RESULTS

Please refer to the APPENDIX H.

10. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI TEST RECEIVER	R&S	ESCI	100382	Dec. 22, 2024
2	TWO-LINE V-NETWORK	R&S	ENV216	101447	Dec. 22, 2024
3	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
4	Cable	N/A	SFT205-NMNM-9M -001	9M	Nov. 27, 2024
5	643 Shield Room	ETS	6*4*3	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60 B-034	Mar. 30, 2025
2	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 22, 2024
3	Cable	N/A	RW2350-3.8A-NMB M-1.5M	N/A	Jun. 09, 2025
4	Cable	N/A	RG 213/U	N/A	Jun. 09, 2025
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	1462	Dec. 13, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980863	Apr. 07, 2025
4	Cable	RegalWay	LMR400-NMNM-12 .5m	N/A	Jun. 06, 2025
5	Cable	RegalWay	LMR400-NMNM-3 m	N/A	Jun. 06, 2025
6	Cable	RegalWay	LMR400-NMNM-0. 5m	N/A	Jun. 06, 2025
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
8	Positioning Controller	MF	MF-7802	N/A	N/A
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	966 Chamber room	CM	9*6*6	N/A	May 16, 2025

Radiated Emissions - Above 1 GHz

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
2	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980888	Nov. 17, 2024
3	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	May 31, 2025
4	Double Ridged Guide Antenna	ETS	3115	75846	Mar 20, 2025
5	Cable	RegalWay	RWLP50-4.0A-SMS M-12.5M	N/A	Feb. 19, 2025
6	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Aug. 08, 2024
7	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Aug. 08, 2024
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 06, 2024
9	Cable	RegalWay	RWLP50-2.6A-2.92 M2.92M-1.1M	N/A	Jul. 26, 2024
10	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	1227	Oct. 10, 2024
12	966 Chamber room	CM	9*6*6	N/A	May 19, 2025
13	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
14	Filter	STI	STI15-9912	N/A	May 31, 2025
15	Positioning Controller	MF	MF-7802	N/A	N/A
16	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Bandwidth & Conducted Spurious Emissions & Power Spectral Density

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	May 31, 2025
2	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A
3	DC Block	N/A	N/A	N/A	N/A
4	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	May 31, 2025
5	Measurement Software	BTL	BTL Conducted Test	N/A	N/A

Maximum Output Power

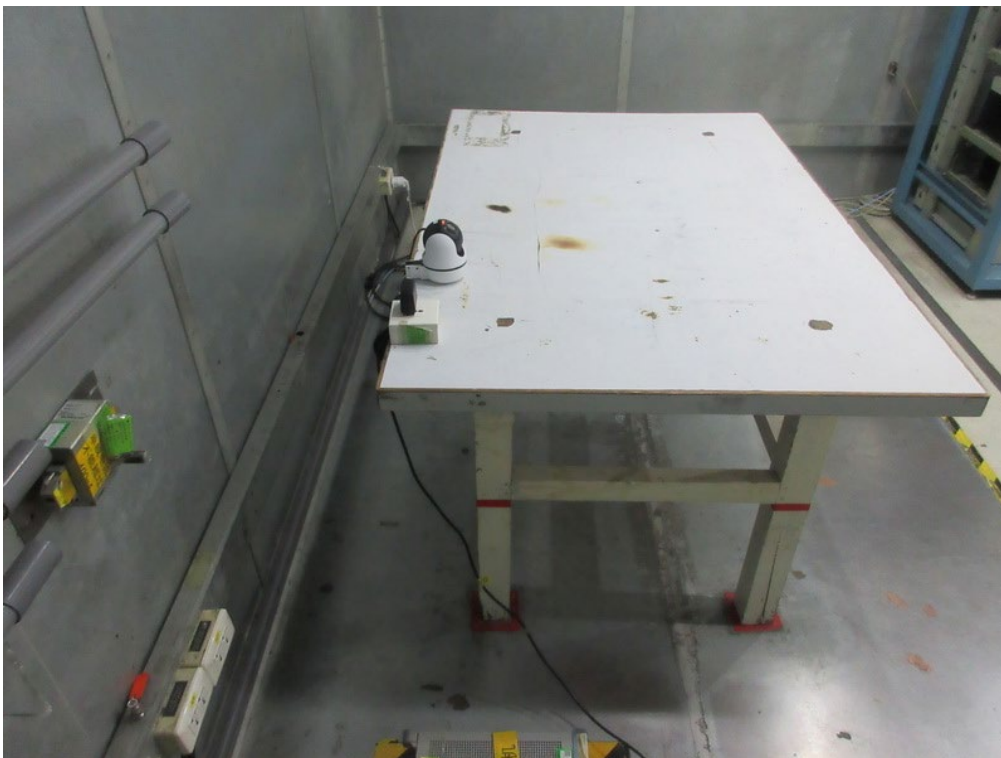
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	May 31, 2025
2	Wideband power sensor	Keysight	N1923A	MY58310004	May 31, 2025
3	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
4	Cable	RegalWay	20210802 014	RWP50-402-SMSM-1M	N/A

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

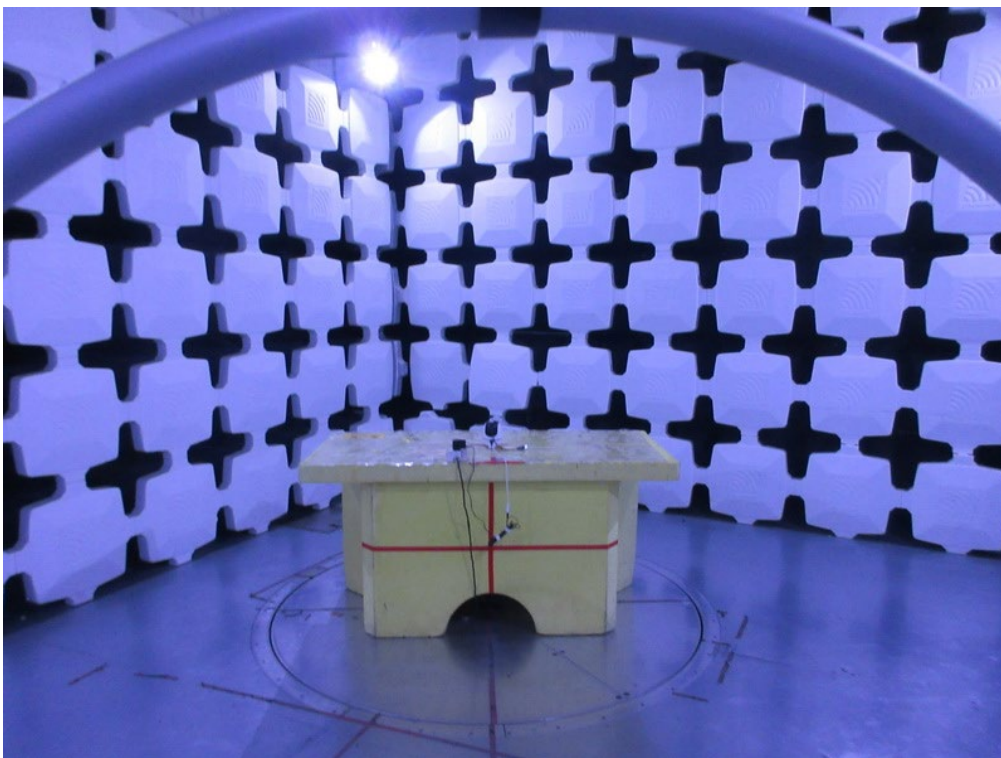
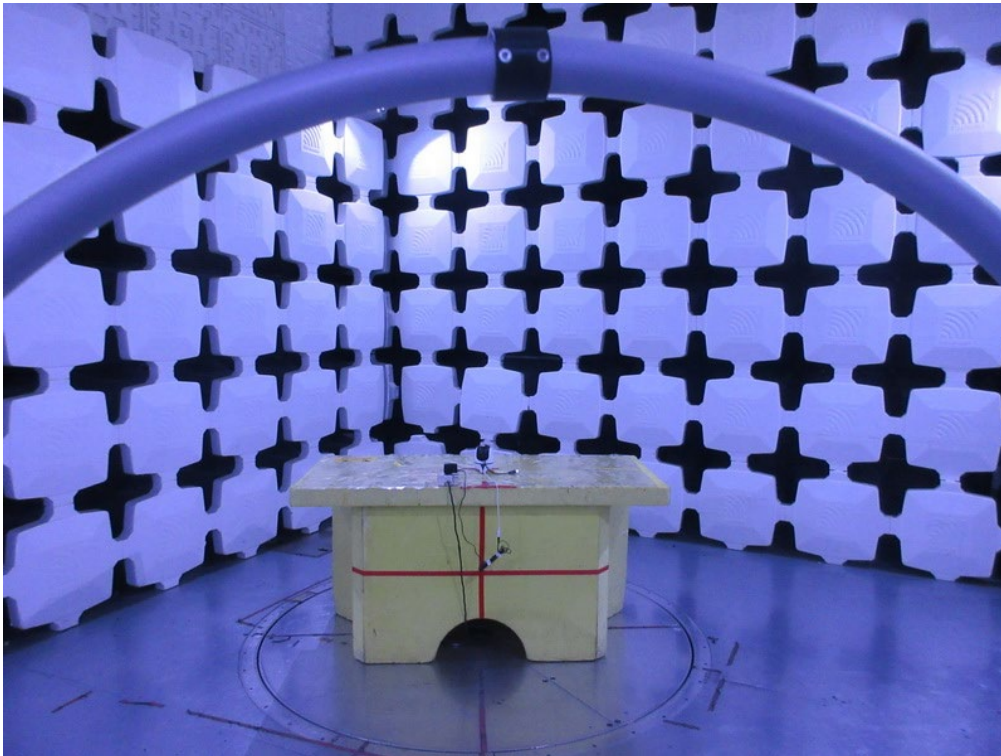
11. EUT TEST PHOTO

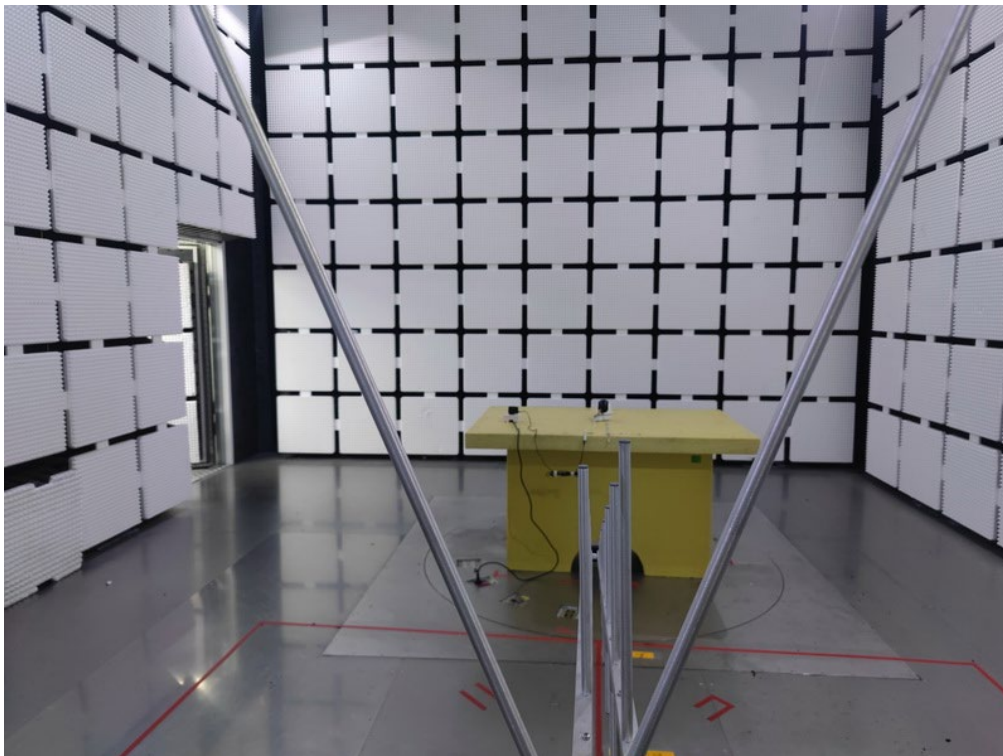
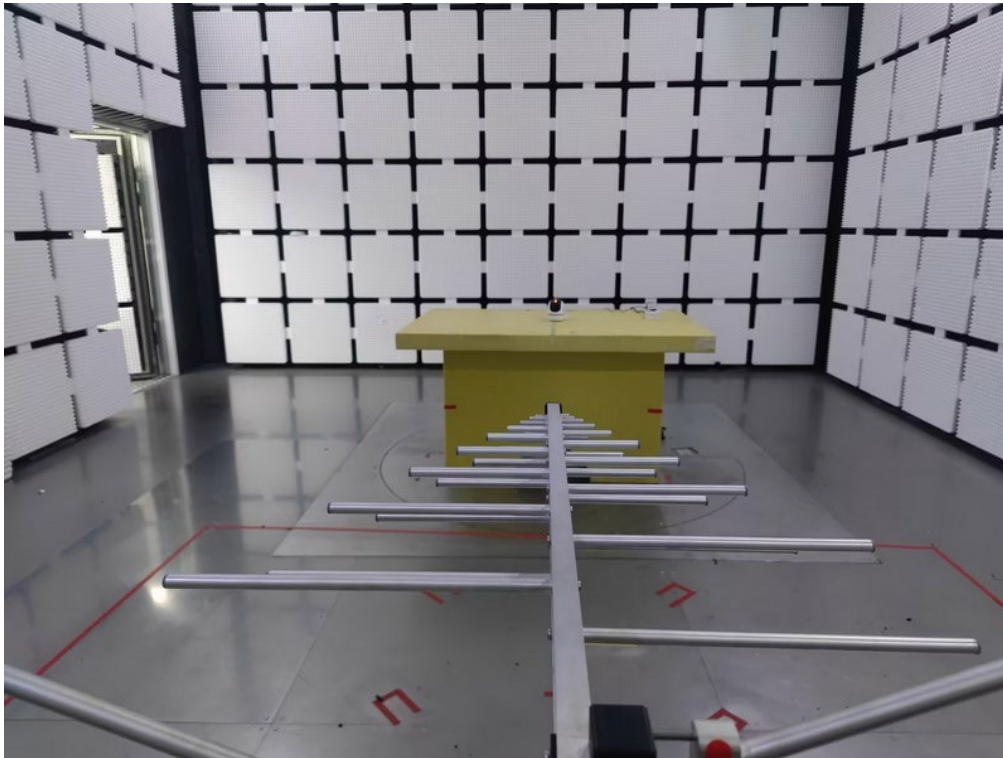
AC Power Line Conducted Emissions Test Photos



Radiated Emissions Test Photos

9 kHz to 30 MHz



Radiated Emissions Test Photos**30 MHz to 1 GHz**

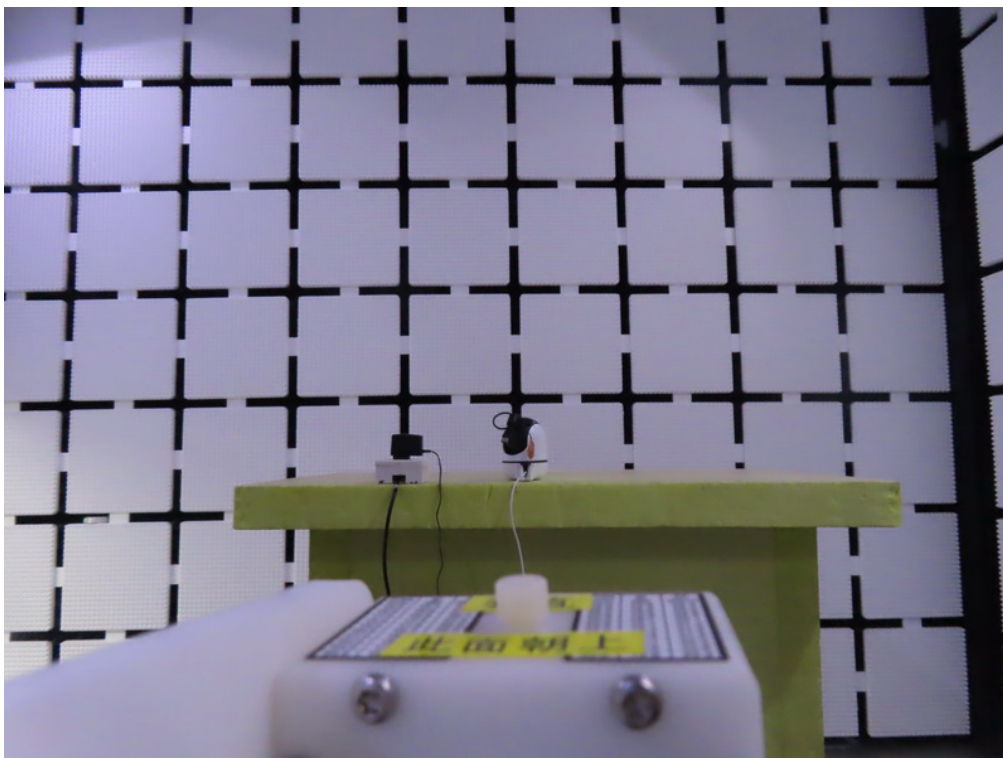
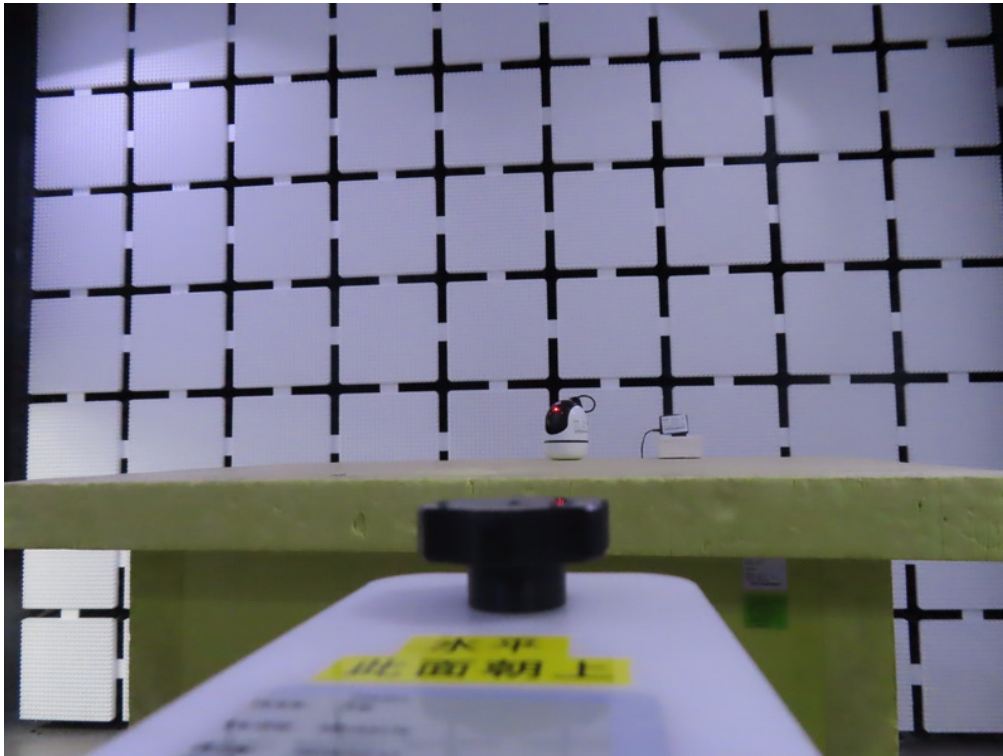
Radiated Emissions Test Photos

Band edge and Harmonic (1 GHz to 18 GHz)

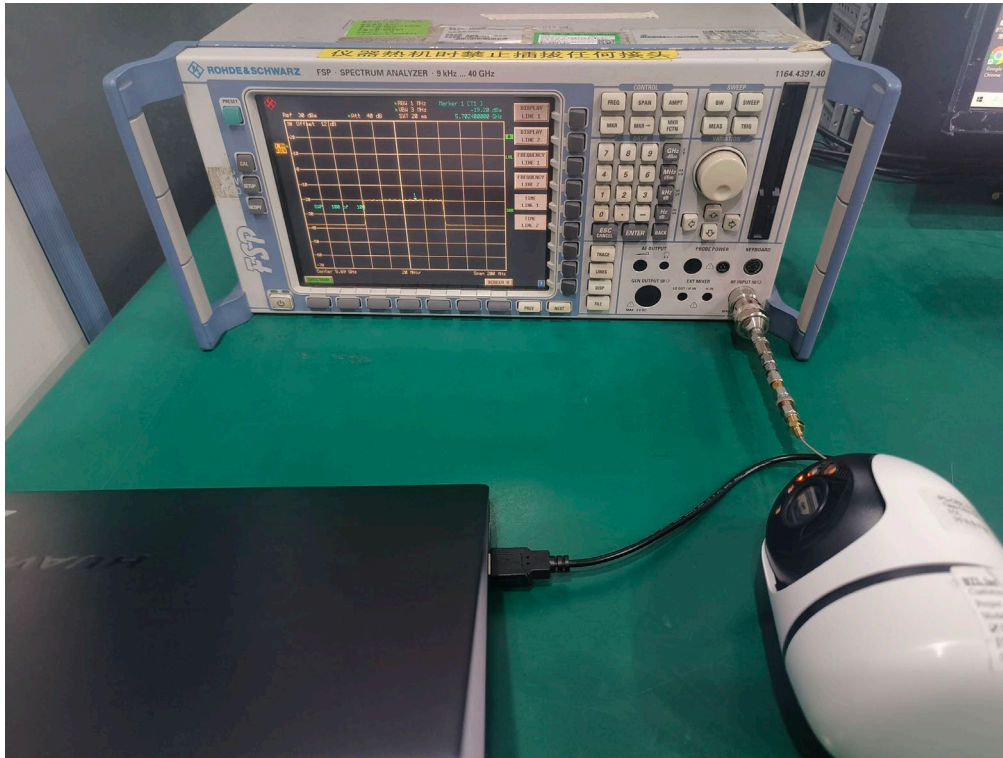


Radiated Emissions Test Photos

Harmonic (Above 18 GHz)

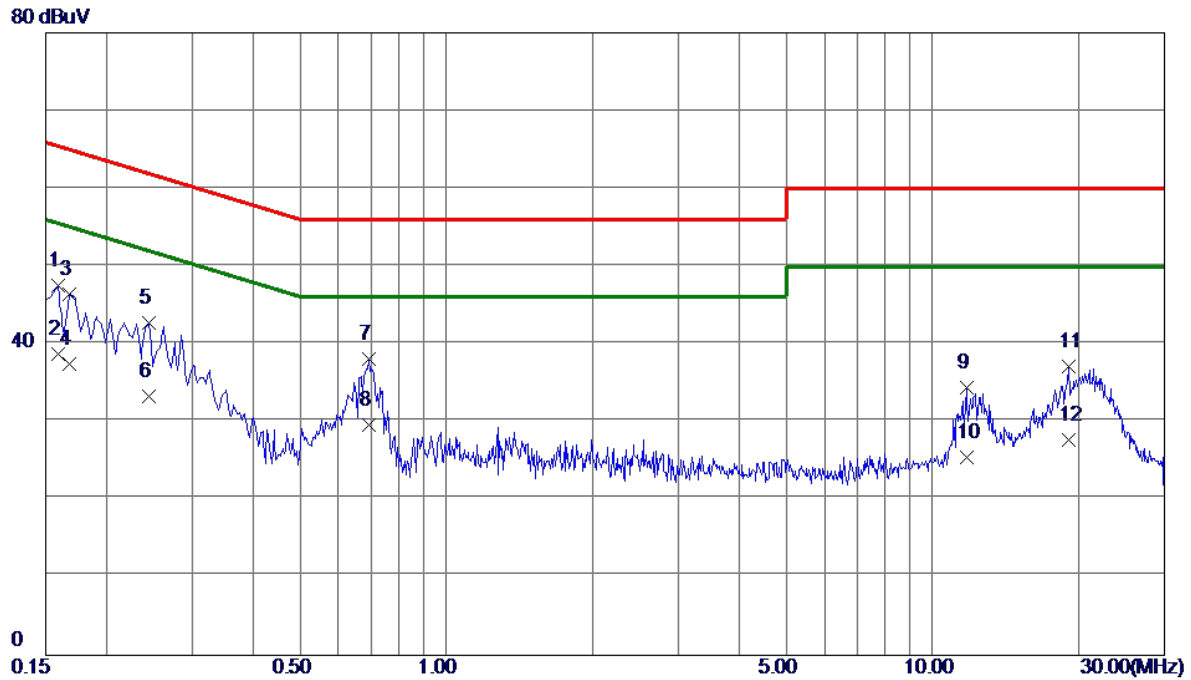


Conducted Test Photos



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode	TX N(HT20) Mode Channel 06	Phase	Line
-----------	----------------------------	-------	------

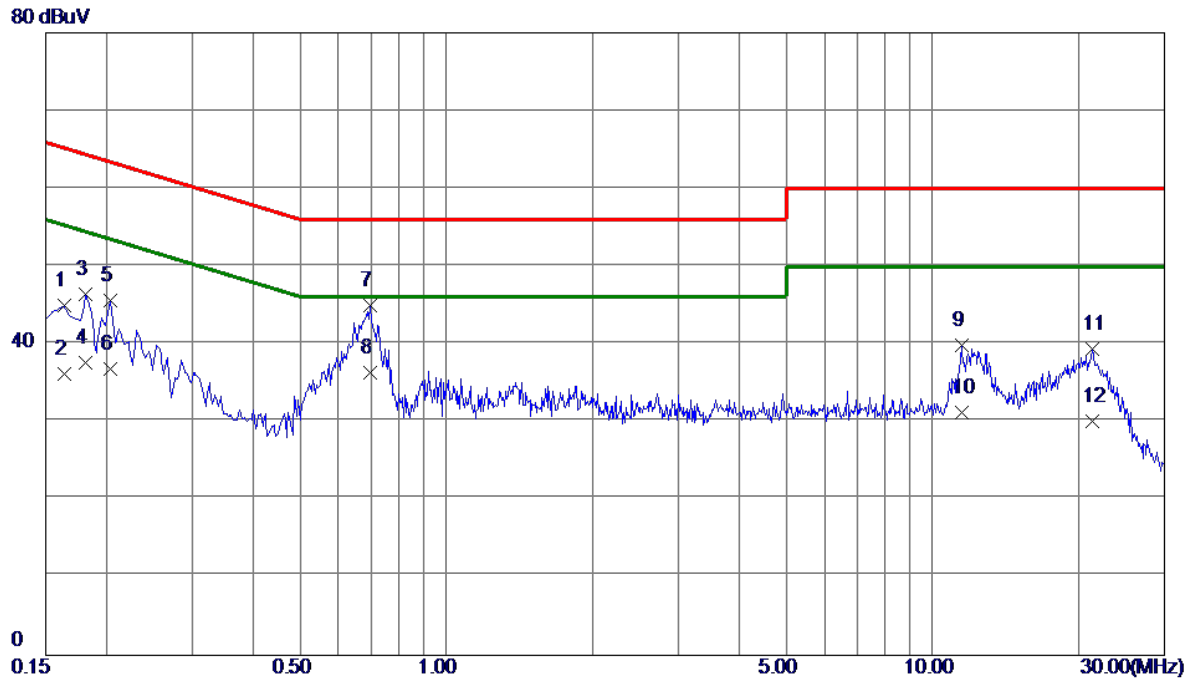


No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1590	37.54	9.97	47.51	65.52	-18.01	QP	
2	0.1590	28.80	9.97	38.77	55.52	-16.75	AVG	
3	0.1680	36.49	9.97	46.46	65.06	-18.60	QP	
4	0.1680	27.50	9.97	37.47	55.06	-17.59	AVG	
5	0.2445	32.63	10.06	42.69	61.94	-19.25	QP	
6	0.2445	23.19	10.06	33.25	51.94	-18.69	AVG	
7	0.6945	27.04	10.99	38.03	56.00	-17.97	QP	
8 *	0.6945	18.60	10.99	29.59	46.00	-16.41	AVG	
9	11.7375	22.02	12.37	34.39	60.00	-25.61	QP	
10	11.7375	13.11	12.37	25.48	50.00	-24.52	AVG	
11	19.0680	22.85	14.25	37.10	60.00	-22.90	QP	
12	19.0680	13.40	14.25	27.65	50.00	-22.35	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 06	Phase	Neutral
-----------	----------------------------	-------	---------



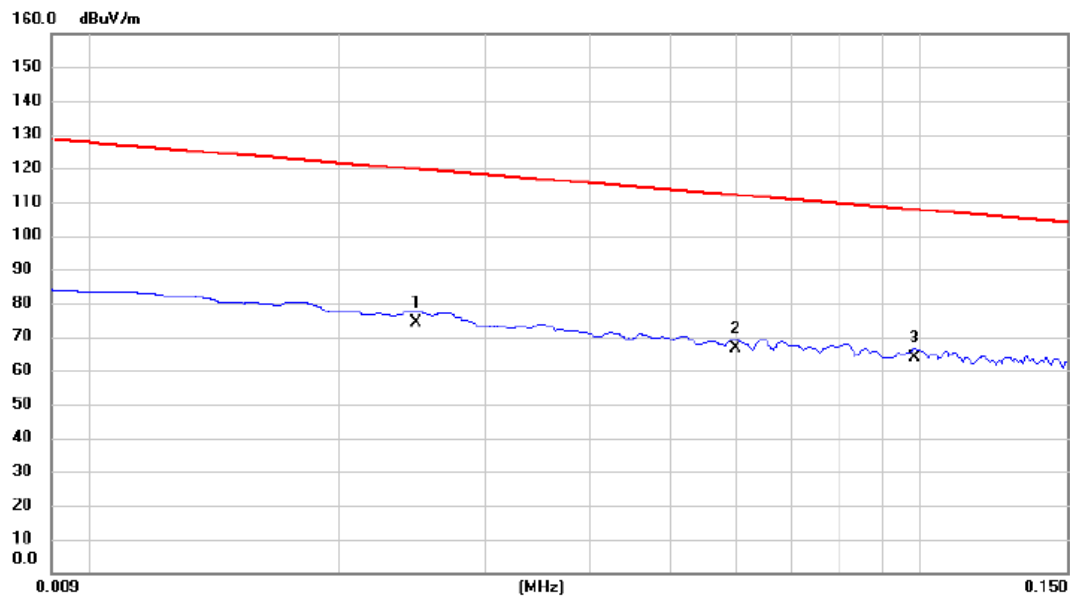
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1635	35.01	9.93	44.94	65.28	-20.34	QP	
2	0.1635	26.20	9.93	36.13	55.28	-19.15	AVG	
3	0.1815	36.49	9.93	46.42	64.42	-18.00	QP	
4	0.1815	27.70	9.93	37.63	54.42	-16.79	AVG	
5	0.2040	35.72	9.95	45.67	63.45	-17.78	QP	
6	0.2040	26.80	9.95	36.75	53.45	-16.70	AVG	
7	0.6990	34.01	10.95	44.96	56.00	-11.04	QP	
8 *	0.6990	25.30	10.95	36.25	46.00	-9.75	AVG	
9	11.4900	27.52	12.29	39.81	60.00	-20.19	QP	
10	11.4900	18.89	12.29	31.18	50.00	-18.82	AVG	
11	21.3225	24.57	14.73	39.30	60.00	-20.70	QP	
12	21.3225	15.40	14.73	30.13	50.00	-19.87	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Ant 0°
-----------	----------------------------	--------------	--------

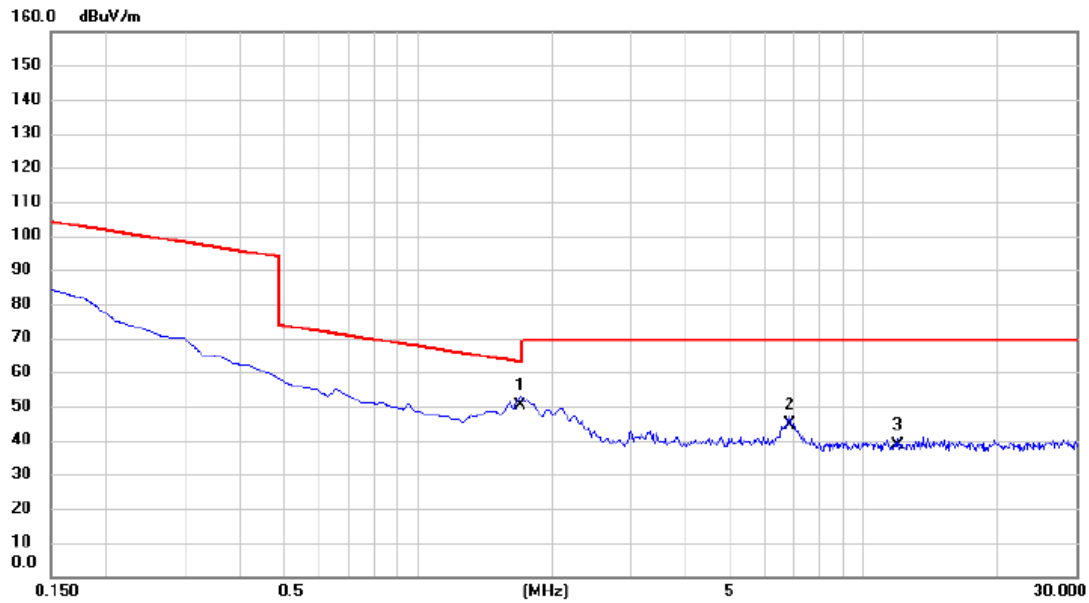


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0247	53.26	20.94	74.20	119.75	-45.55	AVG	
2		0.0600	45.19	21.23	66.42	112.04	-45.62	AVG	
3	*	0.0985	42.29	21.33	63.62	107.74	-44.12	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Ant 0°
-----------	----------------------------	--------------	--------

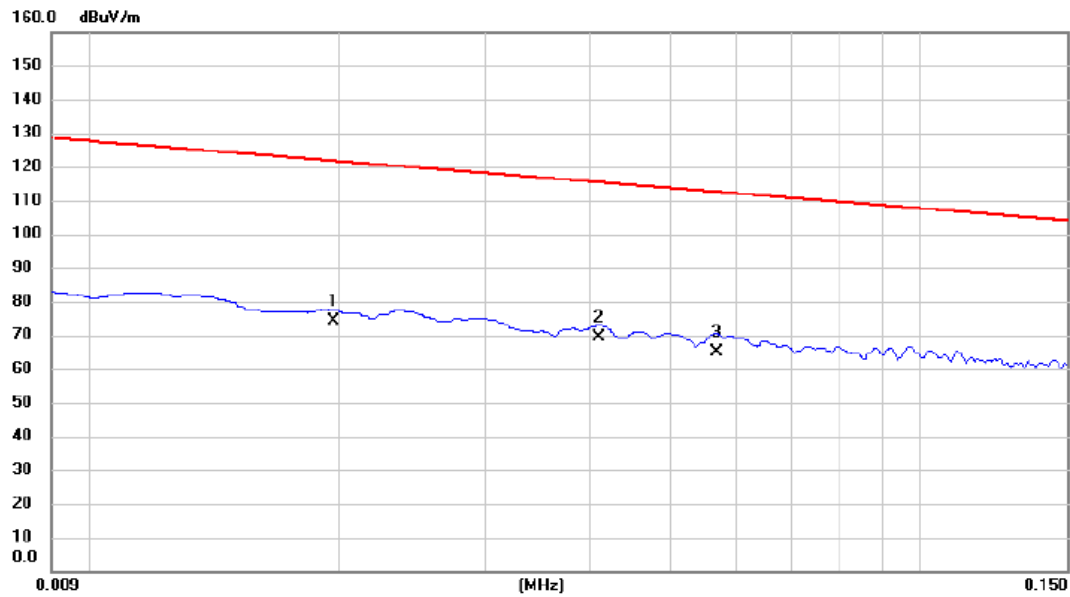


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	1.7022	28.99	21.13	50.12	62.98	-12.86	QP	
2		6.8065	23.45	21.19	44.64	69.54	-24.90	QP	
3		11.9108	17.61	21.16	38.77	69.54	-30.77	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Ant 90°
-----------	----------------------------	--------------	---------



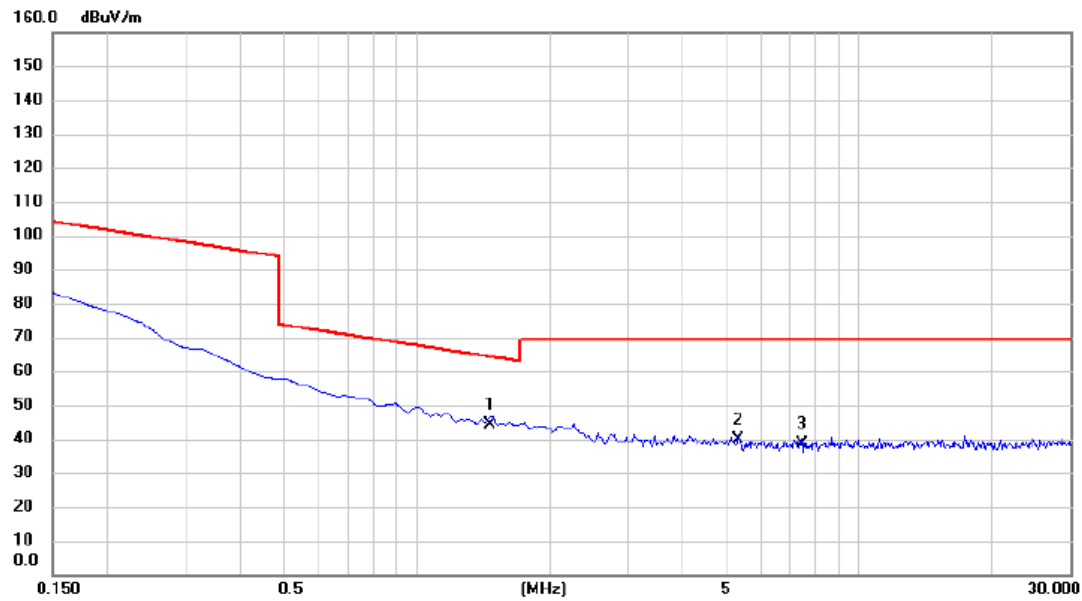
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0197	53.43	20.79	74.22	121.72	-47.50	AVG	
2	*	0.0411	48.16	21.16	69.32	115.33	-46.01	AVG	
3		0.0568	43.91	21.22	65.13	112.52	-47.39	AVG	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Ant 90°
-----------	----------------------------	--------------	---------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	1.4633	23.10	21.14	44.24	64.30	-20.06	QP	
2		5.3440	18.67	21.17	39.84	69.54	-29.70	QP	
3		7.4334	17.29	21.20	38.49	69.54	-31.05	QP	

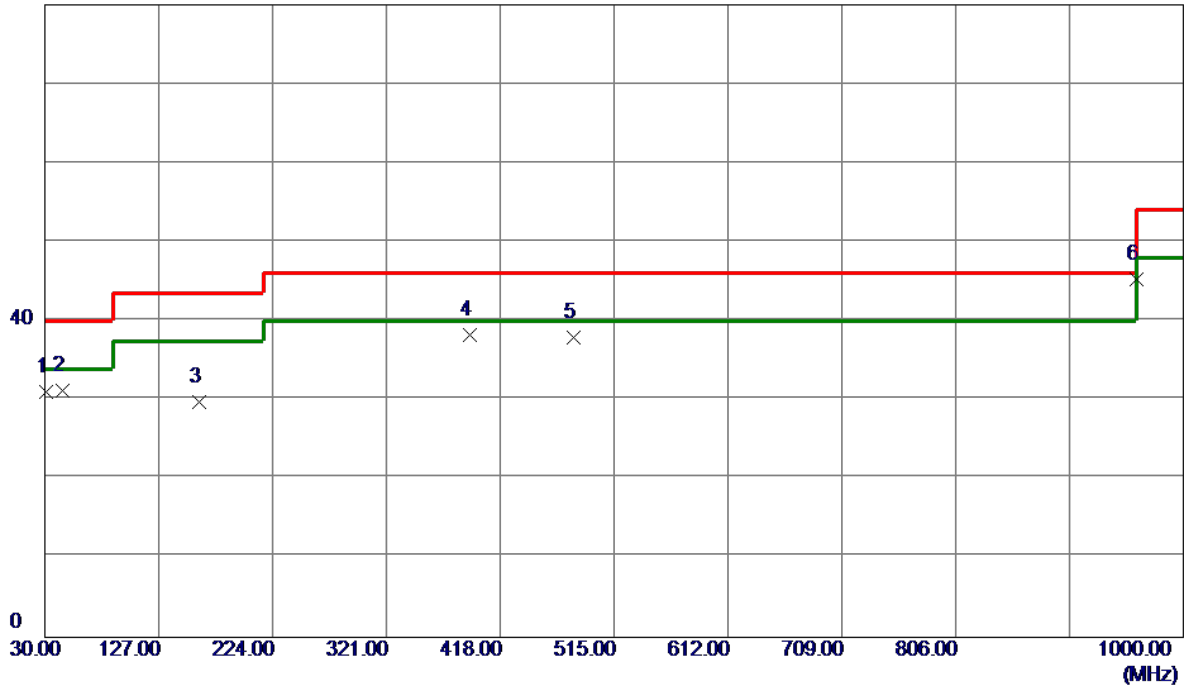
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Vertical
-----------	----------------------------	--------------	----------

80 dBuV/m



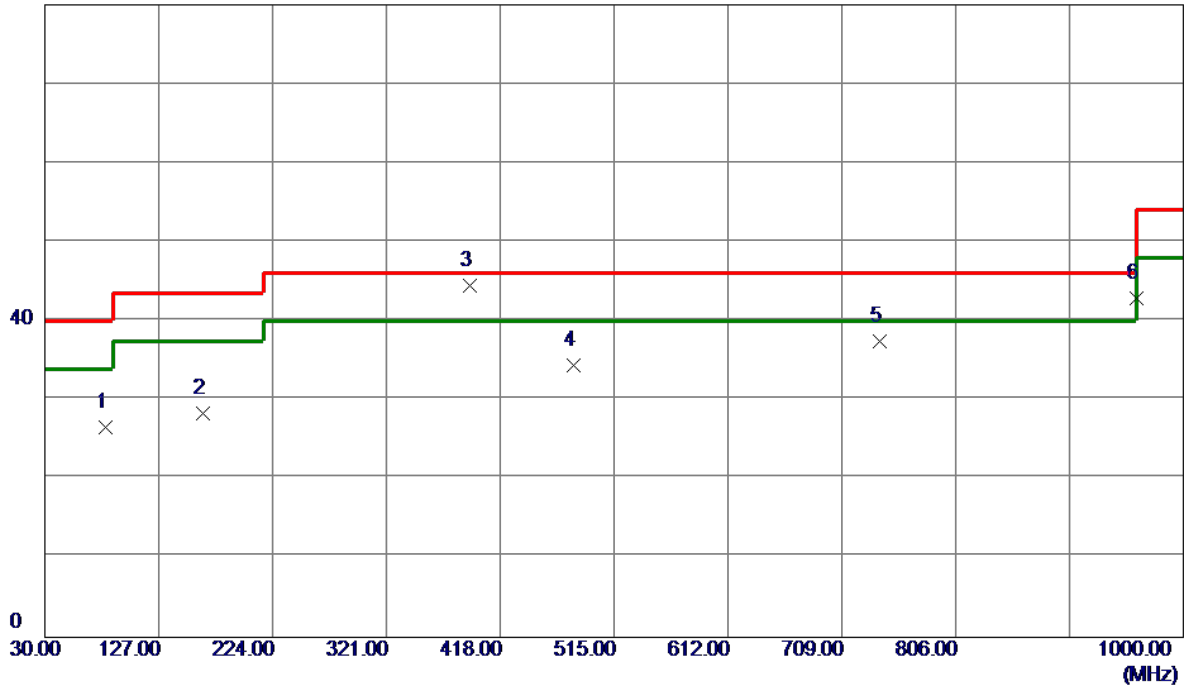
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	30.9700	43.91	-12.94	30.97	40.00	-9.03	Peak	
2	45.0350	42.59	-11.37	31.22	40.00	-8.78	Peak	
3	161.9200	40.60	-10.85	29.75	43.50	-13.75	Peak	
4	391.8100	46.28	-8.04	38.24	46.00	-7.76	Peak	
5	480.0800	44.02	-6.14	37.88	46.00	-8.12	Peak	
6 *	959.7450	44.65	0.69	45.34	46.00	-0.66	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 06	Polarization	Horizontal
-----------	----------------------------	--------------	------------

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	81.4100	42.24	-15.73	26.51	40.00	-13.49	Peak	
2	164.8300	39.31	-10.97	28.34	43.50	-15.16	Peak	
3 *	391.8100	52.48	-8.04	44.44	46.00	-1.56	Peak	
4	480.0800	40.52	-6.14	34.38	46.00	-11.62	Peak	
5	741.0100	38.55	-1.16	37.39	46.00	-8.61	Peak	
6	959.7450	42.14	0.69	42.83	46.00	-3.17	Peak	

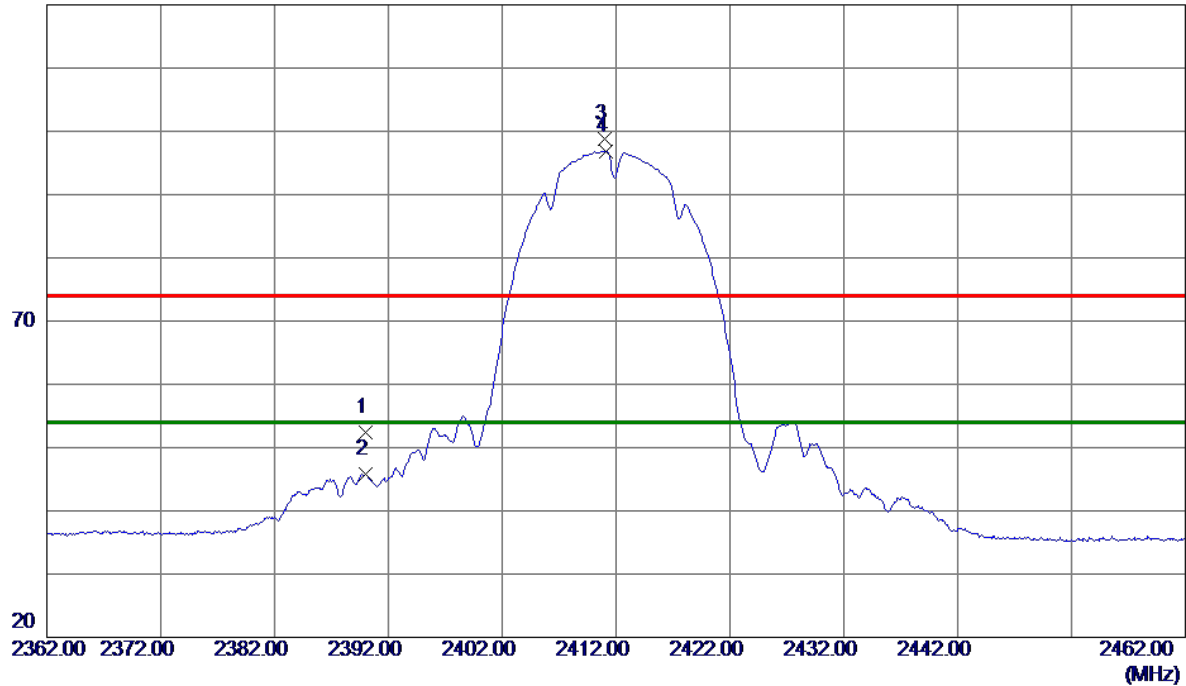
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

Test Mode	TX B Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

120 dBuV/m



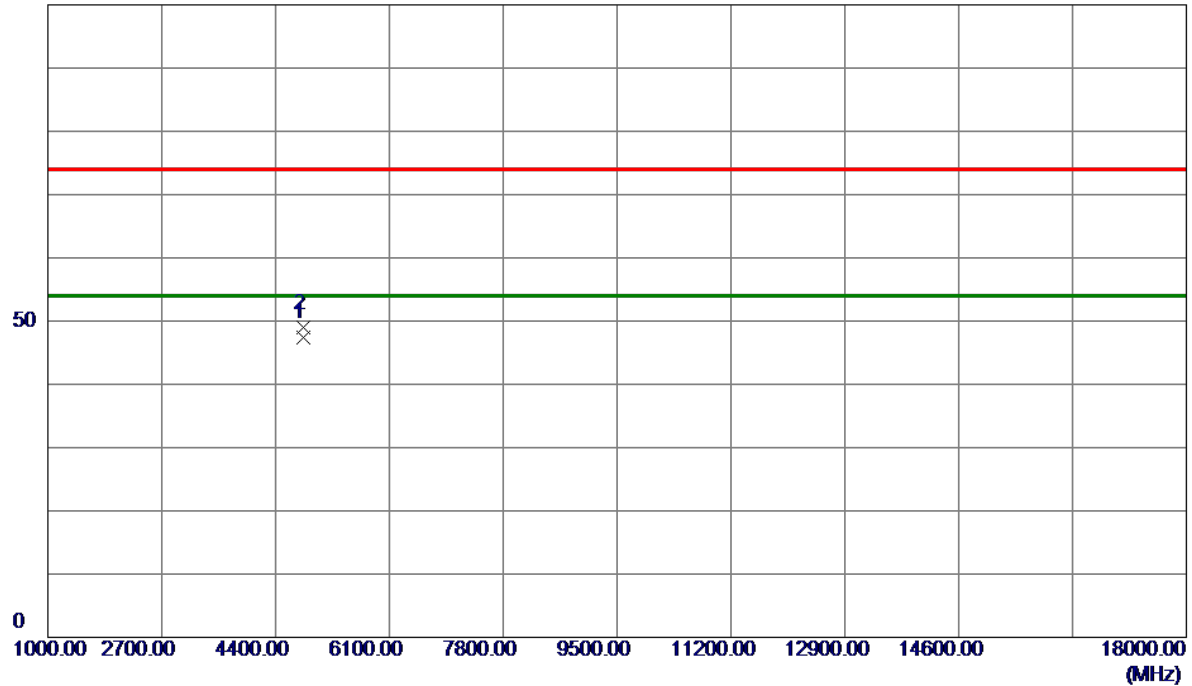
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	46.80	5.51	52.31	74.00	-21.69	Peak	
2	2390.0000	40.20	5.51	45.71	54.00	-8.29	AVG	
3	2411.0500	93.33	5.50	98.83	74.00	24.83	Peak	No Limit
4 *	2411.1000	91.36	5.50	96.86	54.00	42.86	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m



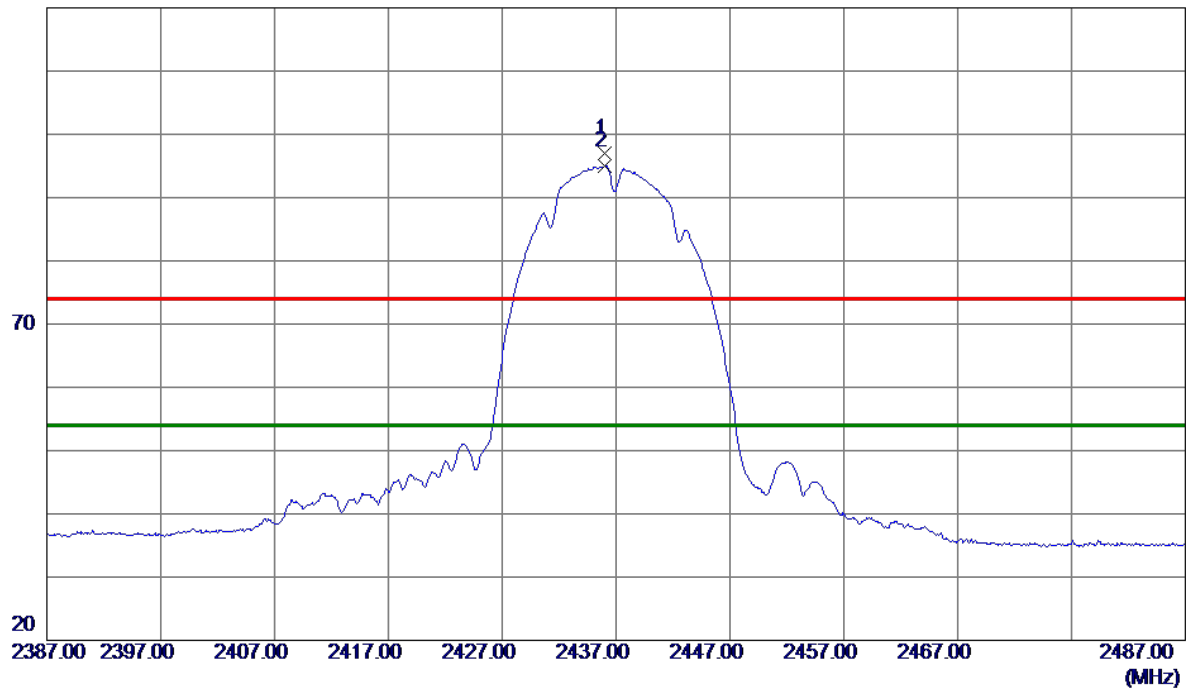
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4823.7599	47.00	0.46	47.46	54.00	-6.54	AVG	
2	4823.8050	48.44	0.46	48.90	74.00	-25.10	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

120 dBuV/m



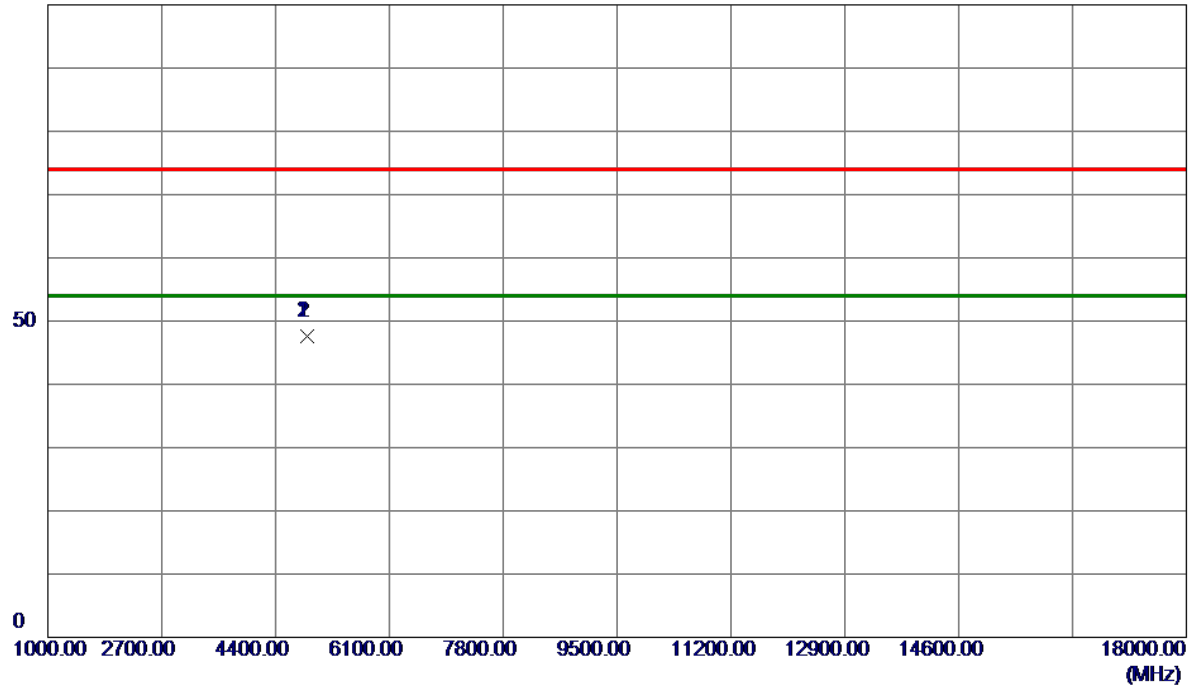
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2436.0500	91.54	5.50	97.04	74.00	23.04	Peak	No Limit
2 *	2436.0500	89.46	5.50	94.96	54.00	40.96	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m



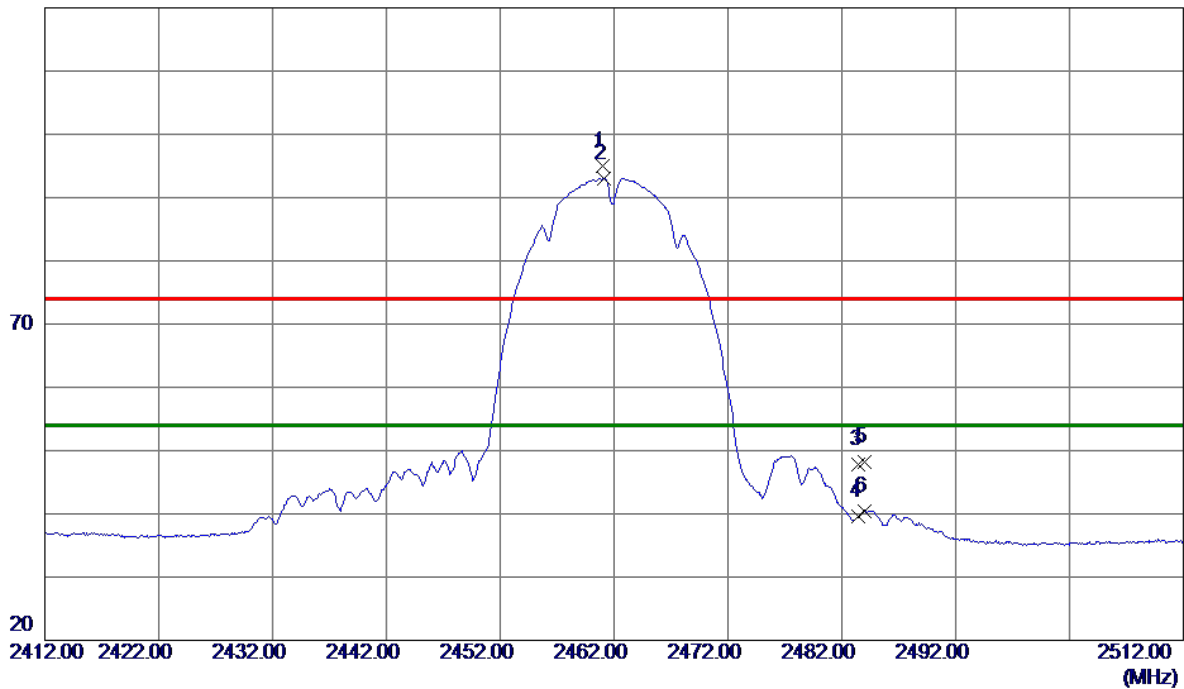
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4873.7350	46.95	0.60	47.55	74.00	-26.45	Peak	
2 *	4873.8000	47.06	0.60	47.66	54.00	-6.34	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

120 dBuV/m



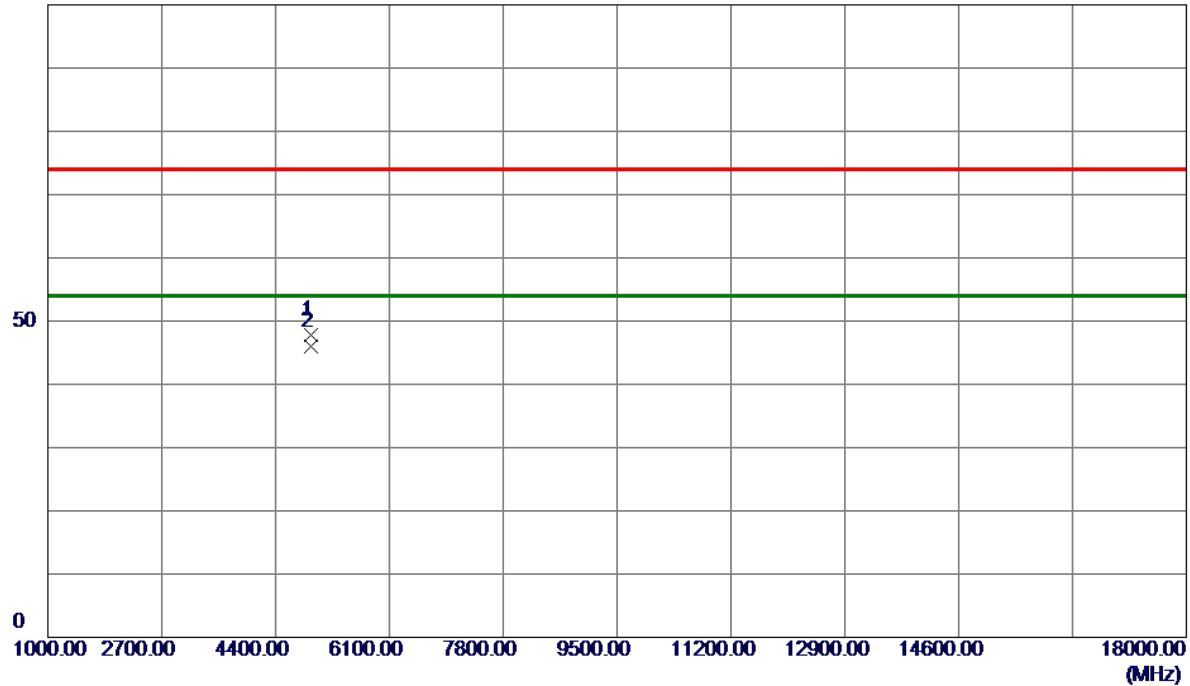
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2461.0500	89.55	5.49	95.04	74.00	21.04	Peak	No Limit
2 *	2461.1000	87.57	5.49	93.06	54.00	39.06	AVG	No Limit
3	2483.5000	42.30	5.48	47.78	74.00	-26.22	Peak	
4	2483.5000	34.15	5.48	39.63	54.00	-14.37	AVG	
5	2484.0000	42.67	5.48	48.15	74.00	-25.85	Peak	
6	2484.0000	35.01	5.48	40.49	54.00	-13.51	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m

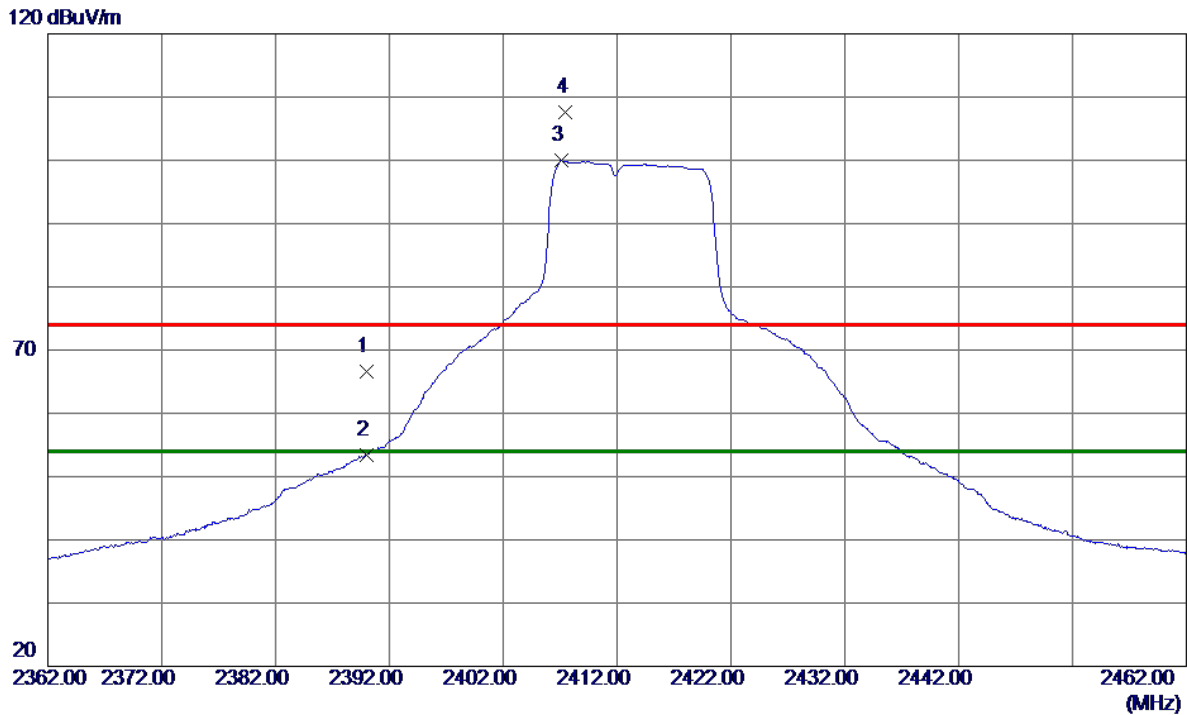


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4923.7100	47.05	0.73	47.78	74.00	-26.22	Peak	
2 *	4923.7400	45.20	0.73	45.93	54.00	-8.07	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------



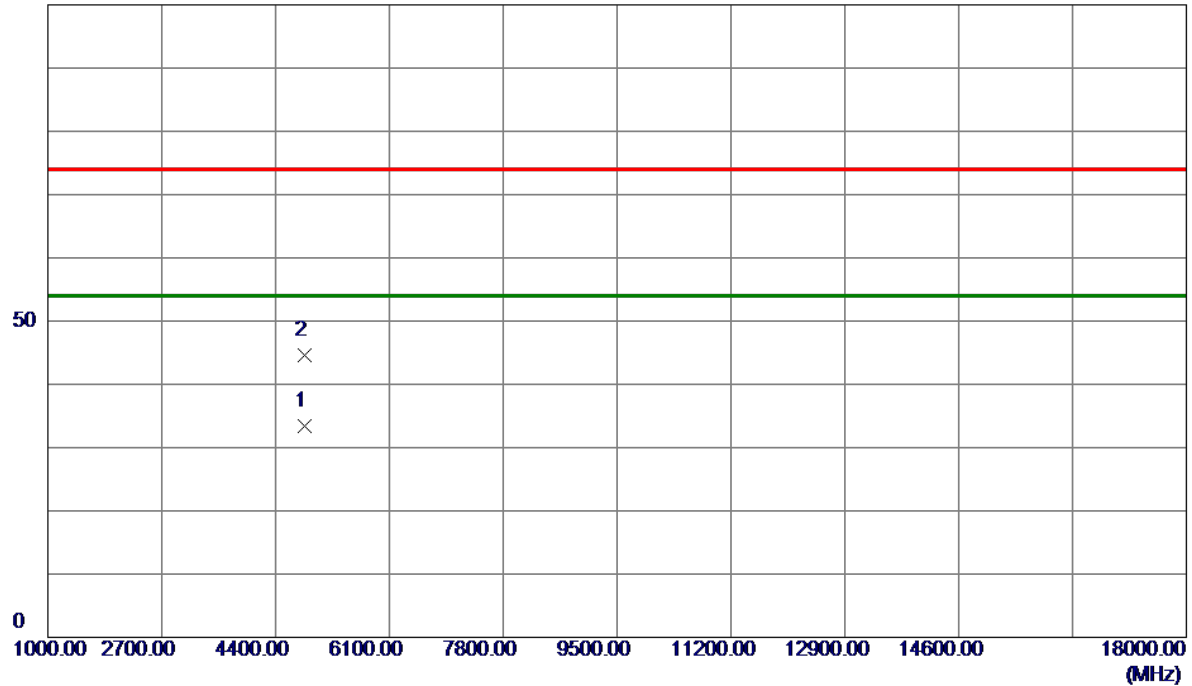
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	61.03	5.51	66.54	74.00	-7.46	Peak	
2	2390.0000	47.88	5.51	53.39	54.00	-0.61	AVG	
3 *	2407.1500	94.44	5.51	99.95	54.00	45.95	AVG	No Limit
4	2407.5000	102.17	5.51	107.68	74.00	33.68	Peak	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m

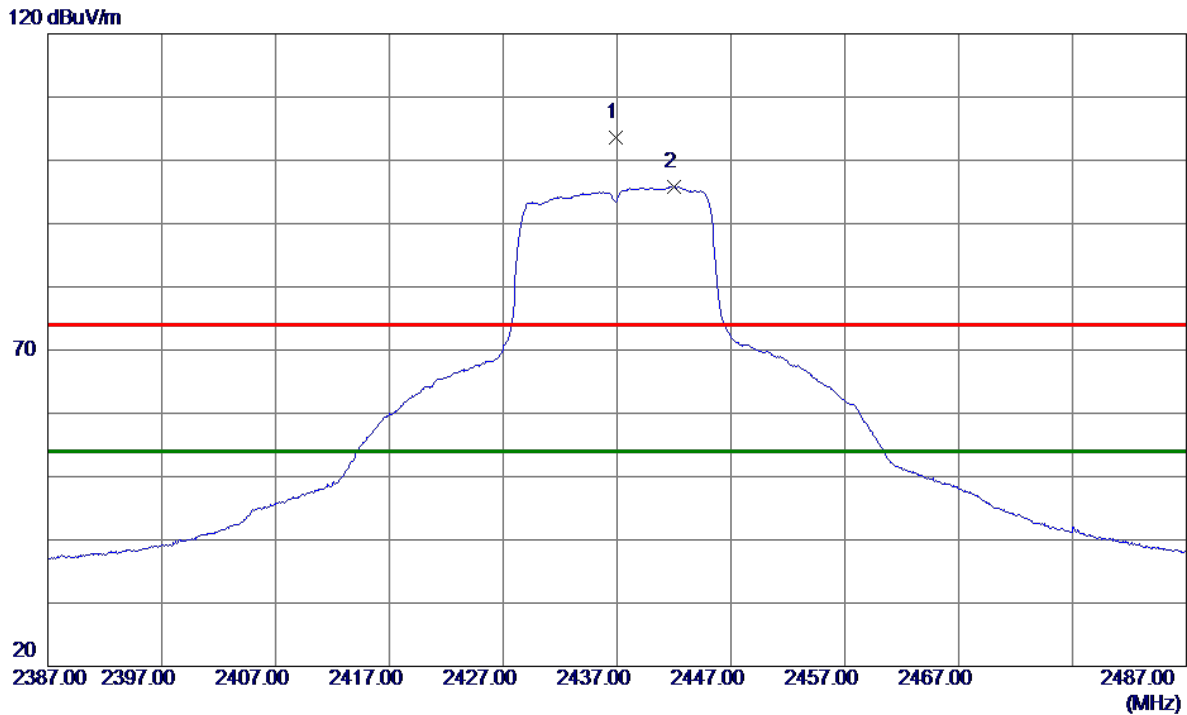


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4825.0500	33.00	0.46	33.46	54.00	-20.54	AVG	
2	4832.9000	44.18	0.48	44.66	74.00	-29.34	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------



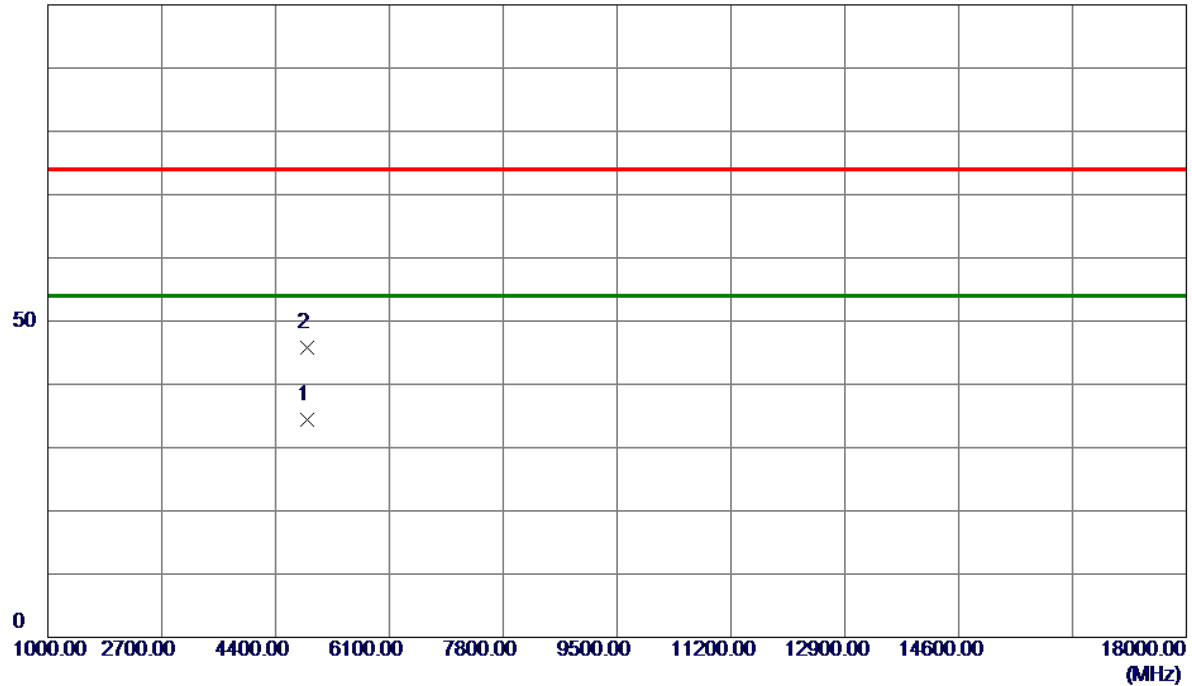
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2436.8500	98.05	5.50	103.55	74.00	29.55	Peak	No Limit
2 *	2442.0500	90.31	5.50	95.81	54.00	41.81	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m

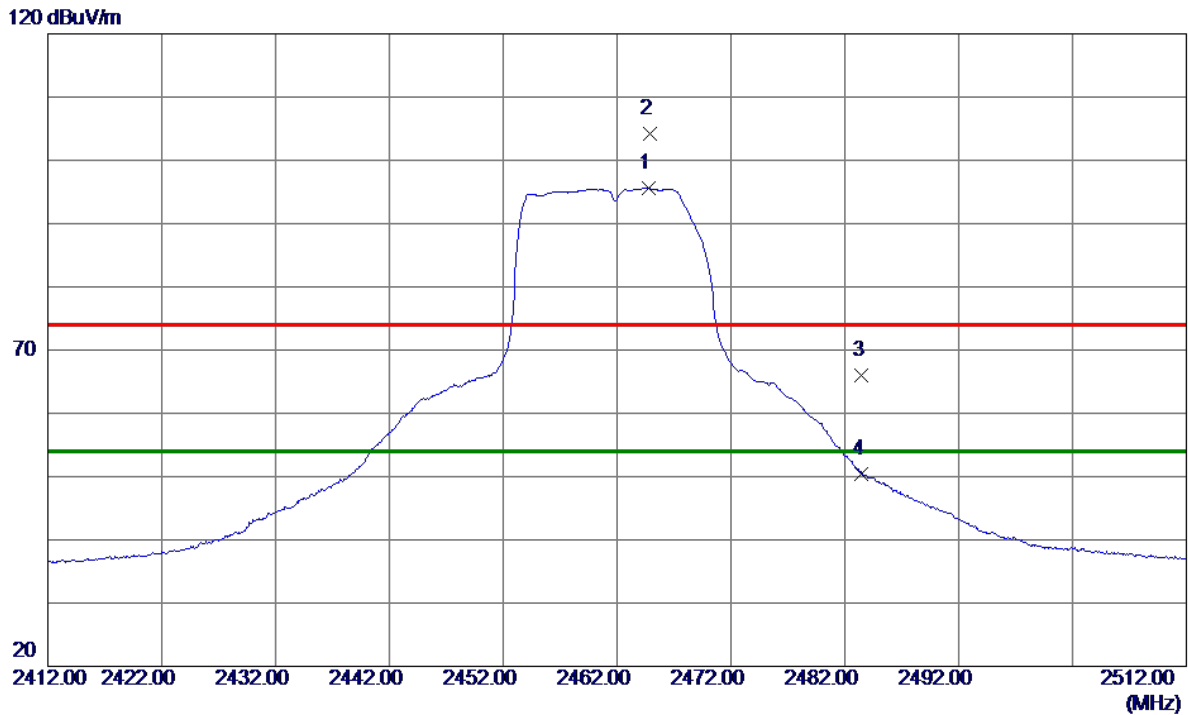


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4870.3250	33.88	0.59	34.47	54.00	-19.53	AVG	
2	4871.6250	45.18	0.59	45.77	74.00	-28.23	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------



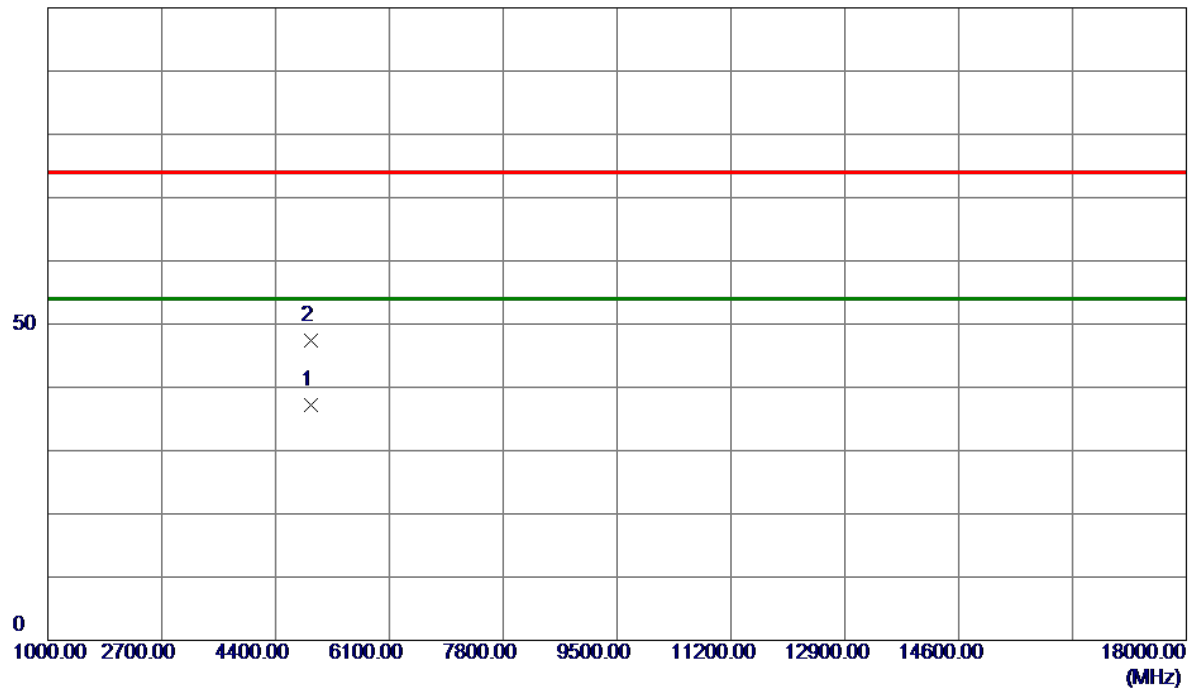
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2464.7500	90.06	5.49	95.55	54.00	41.55	AVG	No Limit
2	2464.8500	98.70	5.49	104.19	74.00	30.19	Peak	No Limit
3	2483.5000	60.55	5.48	66.03	74.00	-7.97	Peak	
4	2483.5000	44.95	5.48	50.43	54.00	-3.57	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX G Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------	--------------	------------

100 dBuV/m



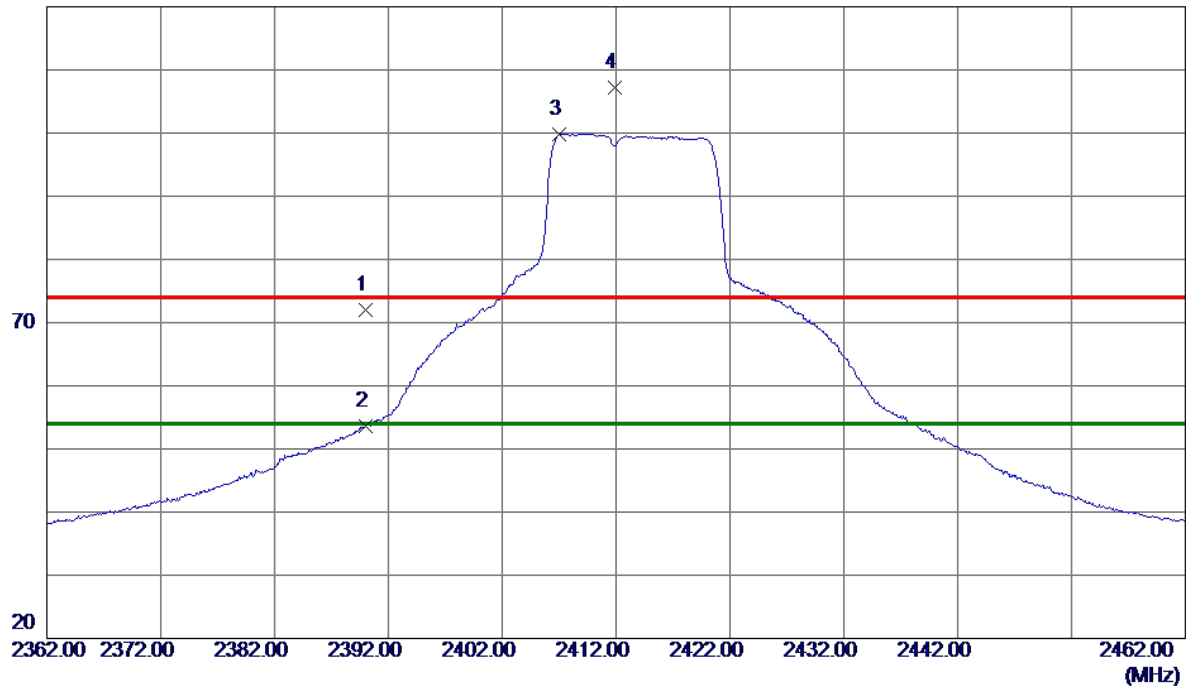
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4919.9500	36.54	0.72	37.26	54.00	-16.74	AVG	
2	4923.4000	46.59	0.73	47.32	74.00	-26.68	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

120 dBuV/m



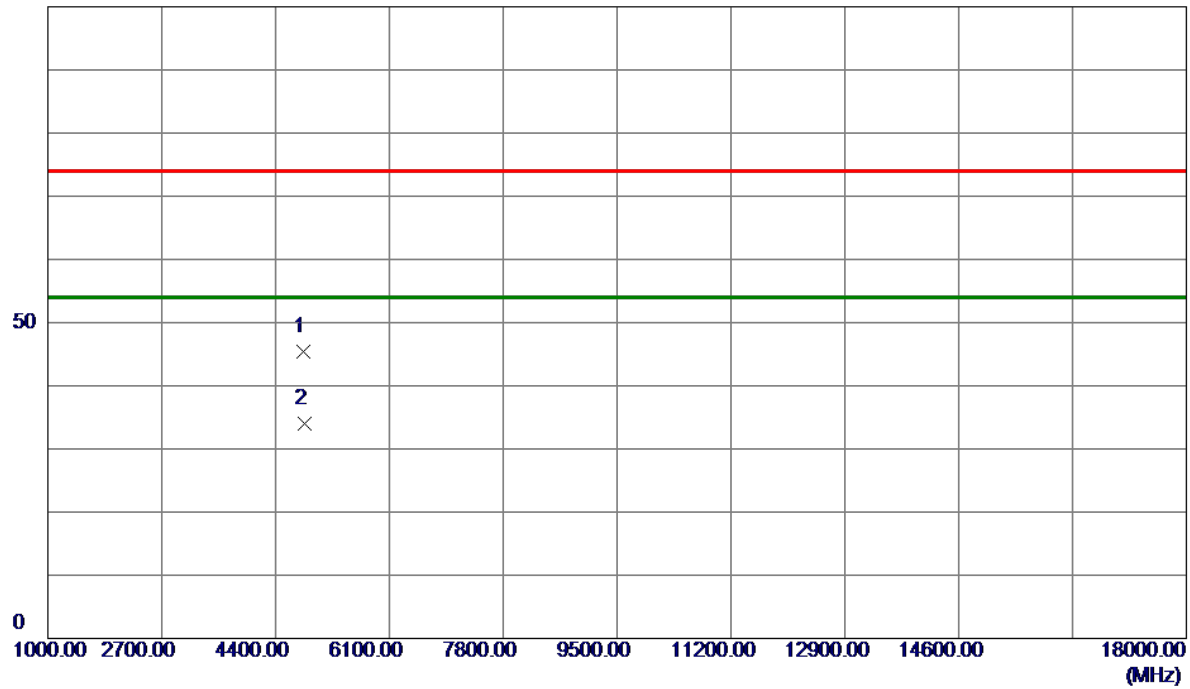
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	66.52	5.51	72.03	74.00	-1.97	Peak	
2	2390.0000	48.04	5.51	53.55	54.00	-0.45	AVG	
3 *	2407.0500	94.38	5.51	99.89	54.00	45.89	AVG	No Limit
4	2411.9000	101.70	5.50	107.20	74.00	33.20	Peak	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

100 dBuV/m



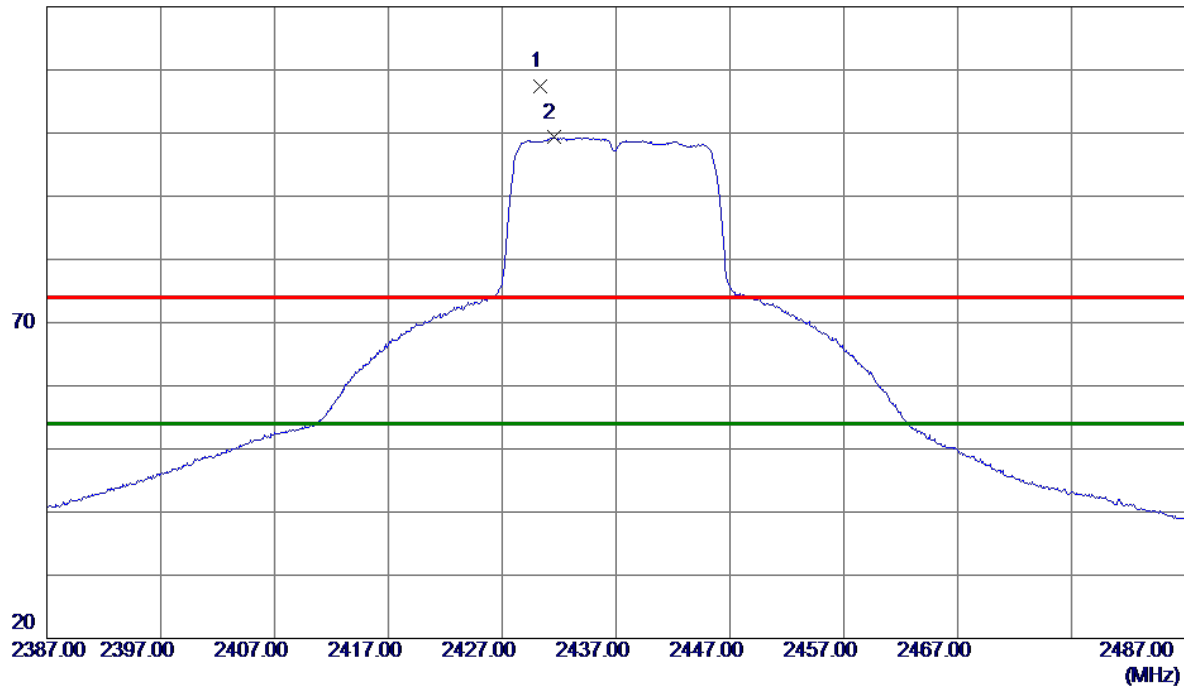
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4824.8750	44.92	0.46	45.38	74.00	-28.62	Peak	
2 *	4828.9000	33.49	0.47	33.96	54.00	-20.04	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

120 dBuV/m



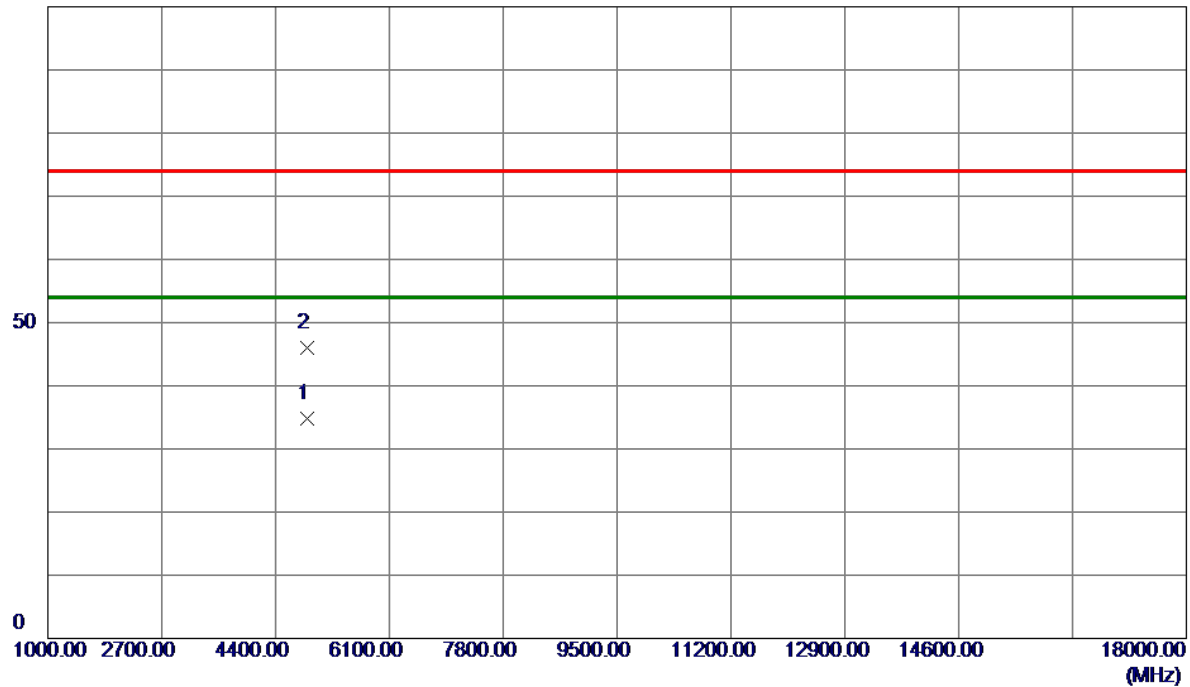
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2430.3500	101.92	5.50	107.42	74.00	33.42	Peak	No Limit
2 *	2431.5000	93.80	5.50	99.30	54.00	45.30	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

100 dBuV/m



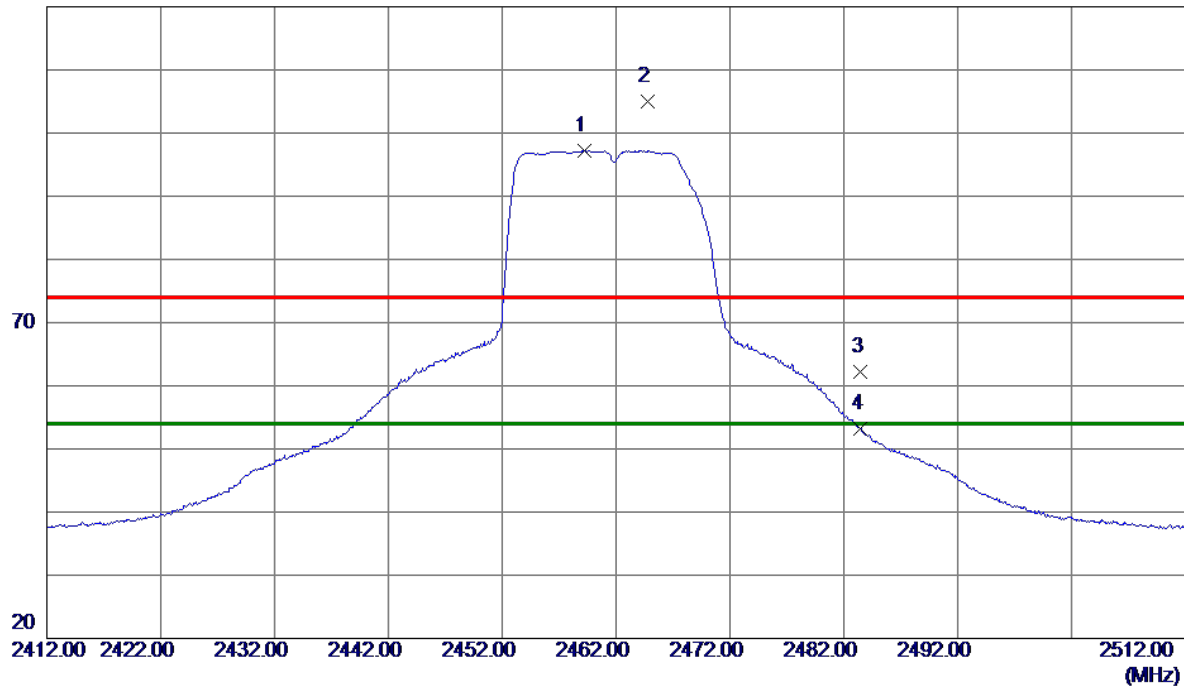
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4873.2250	34.22	0.59	34.81	54.00	-19.19	AVG	
2	4878.0250	45.33	0.61	45.94	74.00	-28.06	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

120 dBuV/m



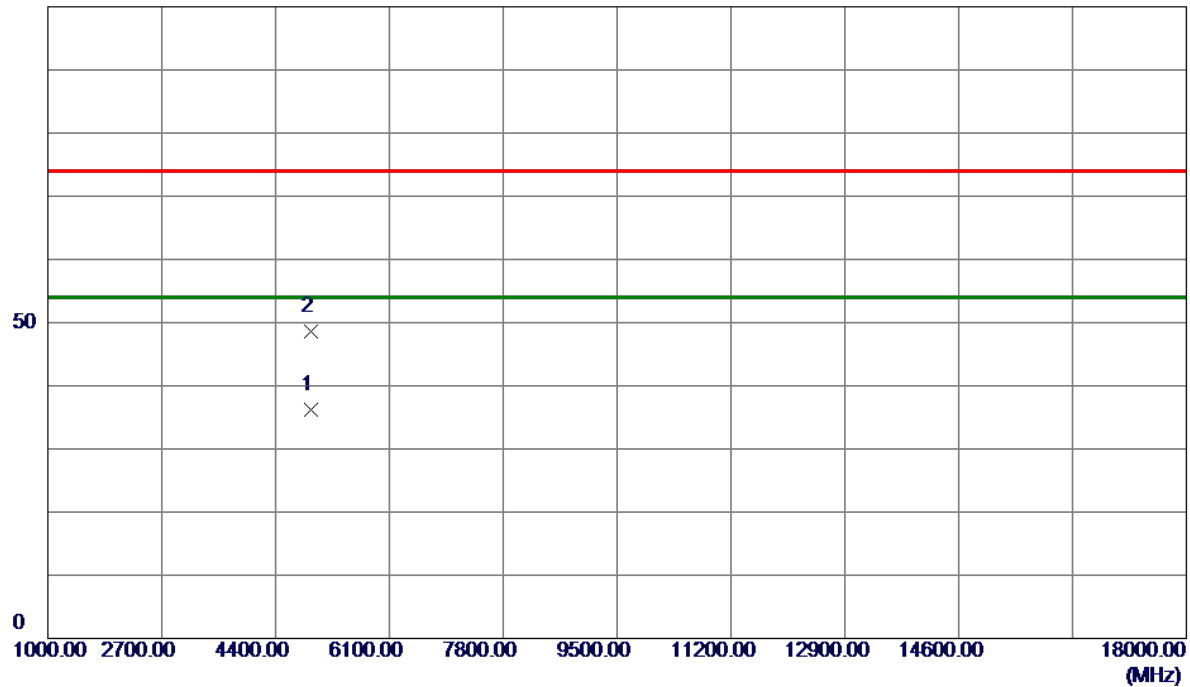
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2459.2500	91.78	5.49	97.27	54.00	43.27	AVG	No Limit
2	2464.7500	99.56	5.49	105.05	74.00	31.05	Peak	No Limit
3	2483.5000	56.71	5.48	62.19	74.00	-11.81	Peak	
4	2483.5000	47.71	5.48	53.19	54.00	-0.81	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

100 dBuV/m

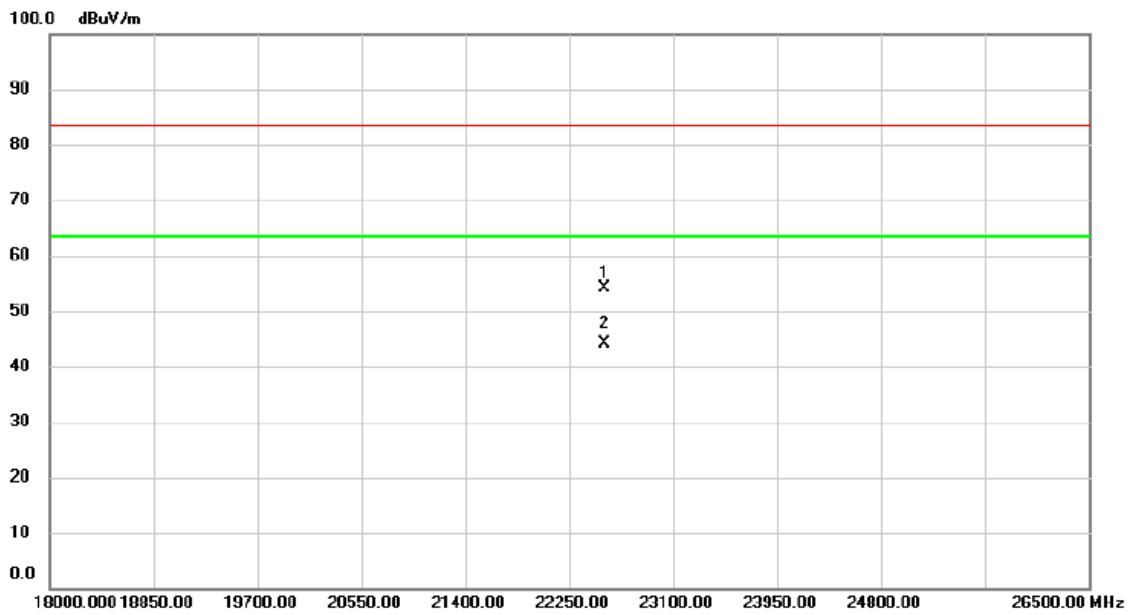


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4921.7750	35.55	0.73	36.28	54.00	-17.72	AVG	
2	4926.4750	47.95	0.74	48.69	74.00	-25.31	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------

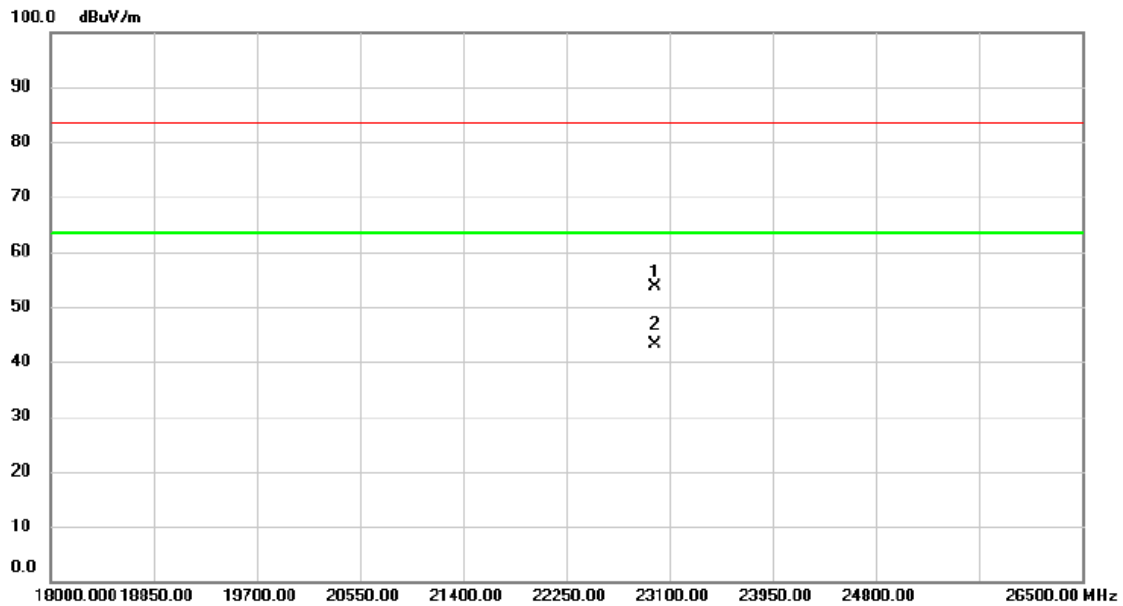


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		22539.00	46.08	8.03	54.11	83.50	-29.39	peak	
2	*	22539.00	36.04	8.03	44.07	63.50	-19.43	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		22976.75	45.71	7.91	53.62	83.50	-29.88	peak	
2	*	22976.75	35.28	7.91	43.19	63.50	-20.31	AVG	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

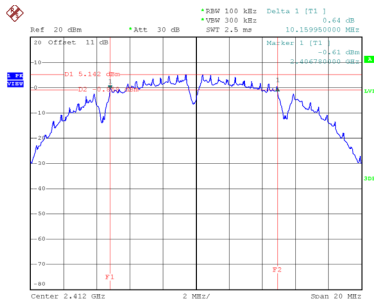
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

Test Mode	TX B Mode
-----------	-----------

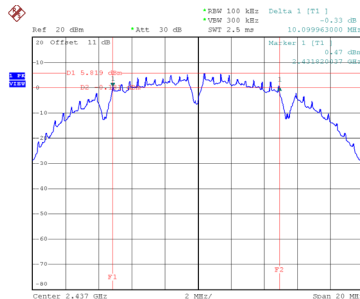
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	10.160	15.040	0.5	Complies
06	2437	10.100	15.040	0.5	Complies
11	2462	10.130	15.040	0.5	Complies

CH01



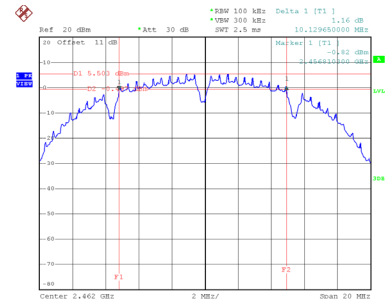
Date: 26.JUN.2024 14:01:24

CH06
6 dB Bandwidth



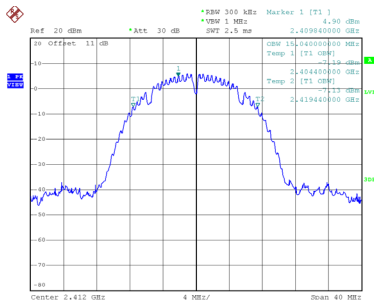
Date: 26.JUN.2024 14:02:28

CH11

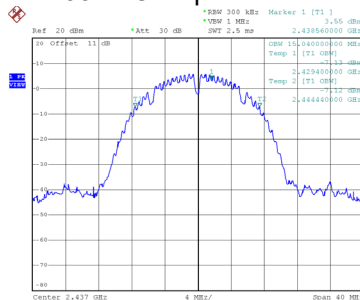


Date: 26.JUN.2024 14:03:24

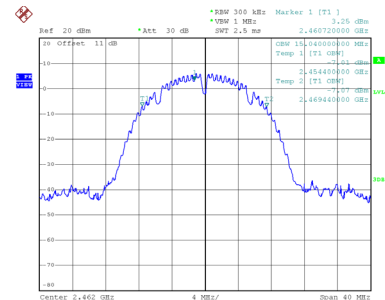
99 % Occupied Bandwidth



Date: 26.JUN.2024 14:01:32



Date: 26.JUN.2024 14:02:36

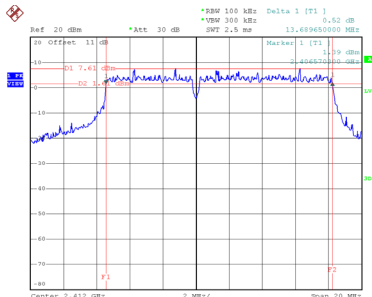


Date: 26.JUN.2024 14:03:32

Test Mode	TX G Mode
-----------	-----------

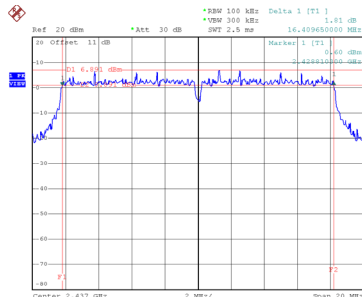
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	13.690	14.880	0.5	Complies
06	2437	16.410	17.200	0.5	Complies
11	2462	14.480	16.320	0.5	Complies

CH01



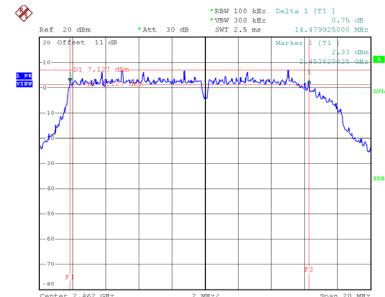
Date: 26.JUN.2024 14:09:27

CH06
6 dB Bandwidth



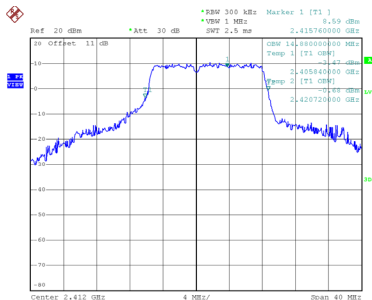
Date: 26.JUN.2024 14:10:07

CH11

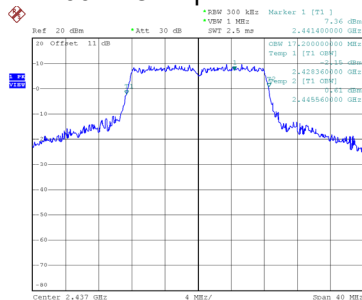


Date: 26.JUN.2024 14:10:51

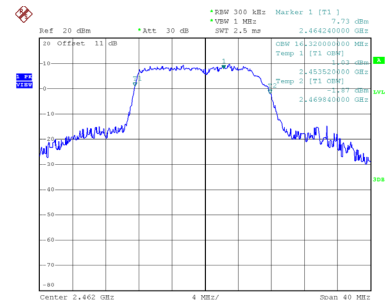
99 % Occupied Bandwidth



Date: 26.JUN.2024 14:09:35



Date: 26.JUN.2024 14:10:14

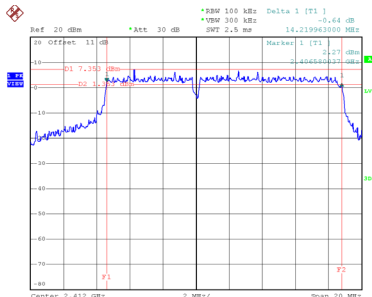


Date: 26.JUN.2024 14:10:58

Test Mode	TX N(HT20) Mode
-----------	-----------------

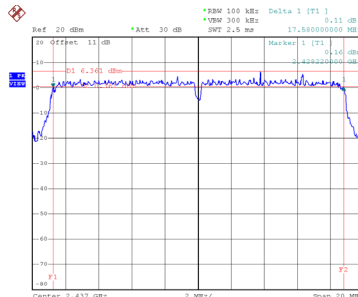
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	14.220	15.520	0.5	Complies
06	2437	17.580	18.000	0.5	Complies
11	2462	15.510	16.880	0.5	Complies

CH01



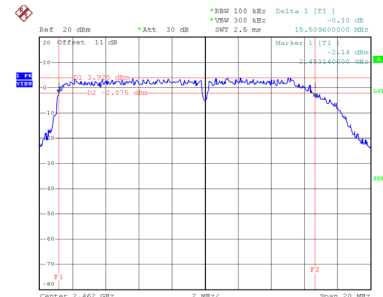
Date: 26.JUN.2024 14:12:00

CH06
6 dB Bandwidth



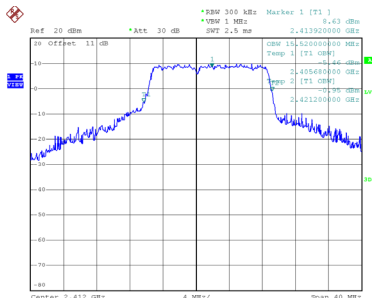
Date: 26.JUN.2024 14:12:36

CH11

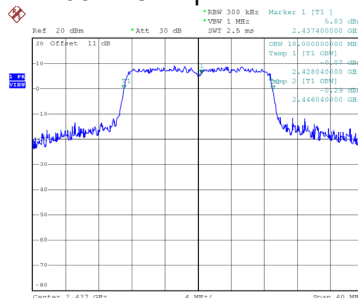


Date: 26.JUN.2024 14:13:13

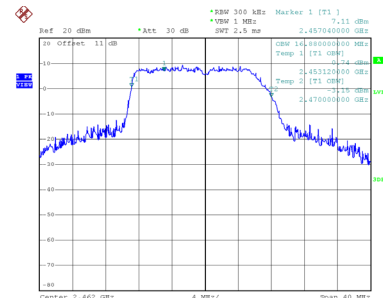
99 % Occupied Bandwidth



Date: 26.JUN.2024 14:12:07



Date: 26.JUN.2024 14:12:44



Date: 26.JUN.2024 14:13:21

APPENDIX F - MAXIMUM OUTPUT POWER

Test Mode	TX B Mode_Ant. 1
-----------	------------------

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	18.89	0.46	19.35	30.00	1.0000	Complies
06	2437	18.98	0.46	19.44	30.00	1.0000	Complies
11	2462	19.02	0.46	19.48	30.00	1.0000	Complies

Test Mode	TX G Mode_Ant. 1
-----------	------------------

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.10	0.44	19.54	30.00	1.0000	Complies
06	2437	19.05	0.44	19.49	30.00	1.0000	Complies
11	2462	19.02	0.44	19.46	30.00	1.0000	Complies

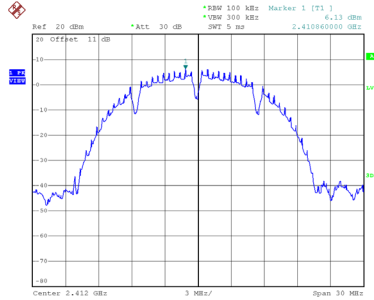
Test Mode	TX N(HT20) Mode_Ant. 1
-----------	------------------------

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.03	0.52	19.55	30.00	1.0000	Complies
06	2437	19.04	0.52	19.56	30.00	1.0000	Complies
11	2462	18.99	0.52	19.51	30.00	1.0000	Complies

APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

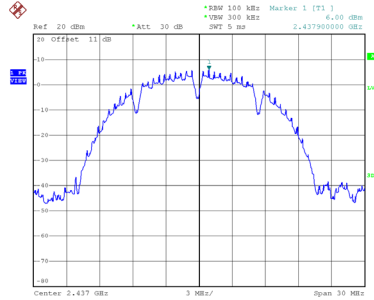
Test Mode TX B Mode_Ant. 1

Reference Level-CH01



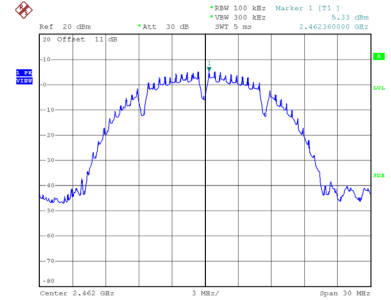
Date: 27.JUN.2024 09:29:56

Reference Level-CH06



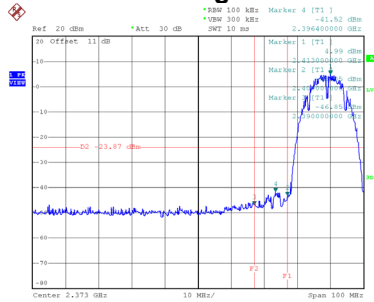
Date: 27.JUN.2024 09:31:00

Reference Level-CH11



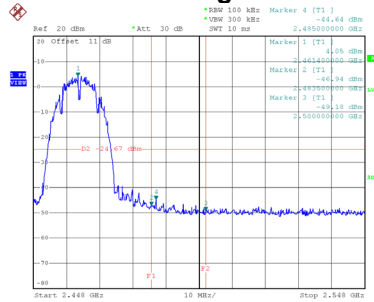
Date: 27.JUN.2024 09:32:00

Bandedge-CH01



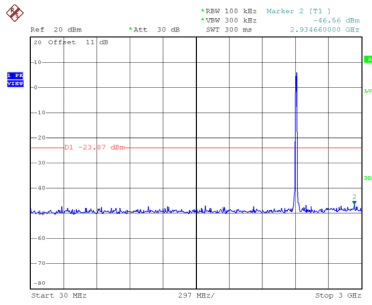
Date: 27.JUN.2024 09:45:22

Bandedge-CH11

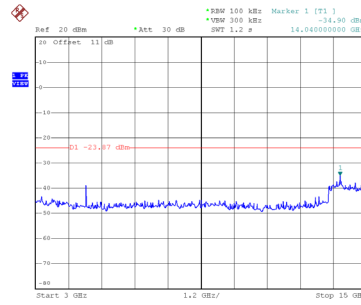


Date: 27.JUN.2024 09:49:20

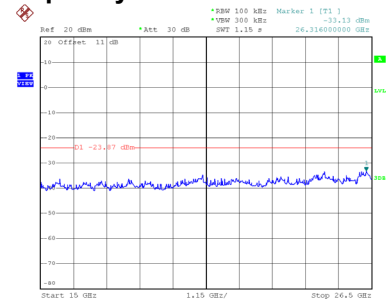
CH01 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 09:45:59

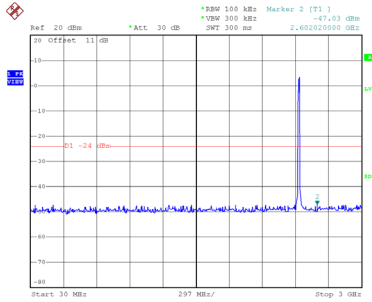


Date: 27.JUN.2024 09:46:08

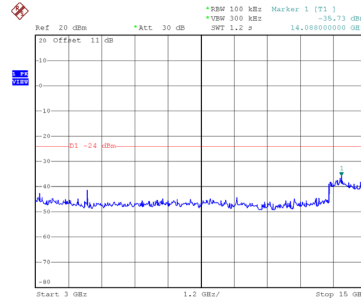


Date: 27.JUN.2024 09:46:17

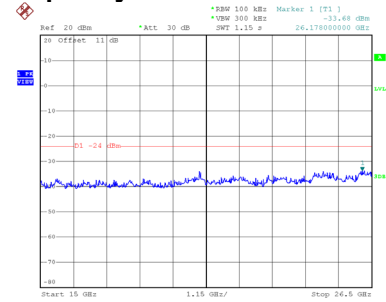
CH06 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 09:47:42

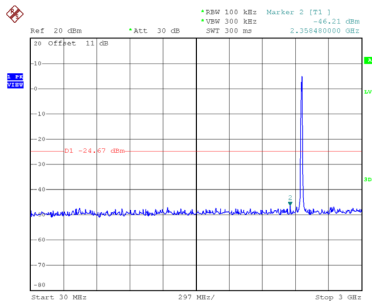


Date: 27.JUN.2024 09:47:51

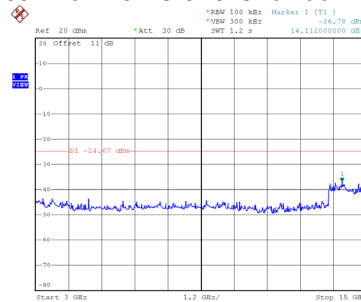


Date: 27.JUN.2024 09:48:00

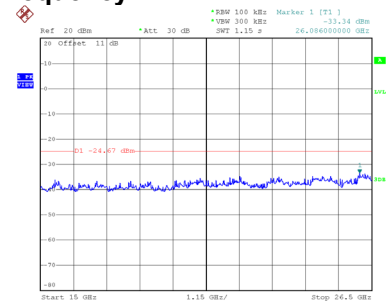
CH11 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 09:49:51



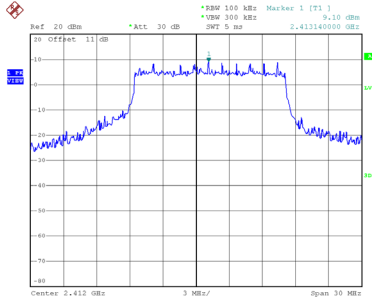
Date: 27.JUN.2024 09:50:00



Date: 27.JUN.2024 09:50:09

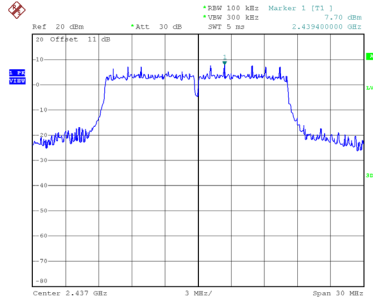
Test Mode TX G Mode_Ant. 1

Reference Level-CH01



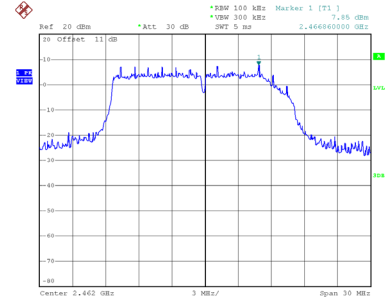
Date: 27.JUN.2024 09:33:44

Reference Level-CH06



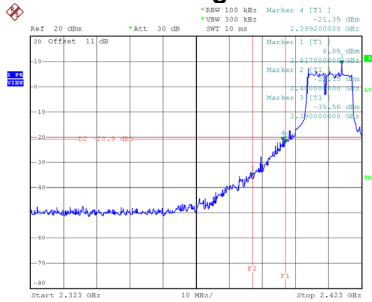
Date: 27.JUN.2024 09:34:09

Reference Level-CH11



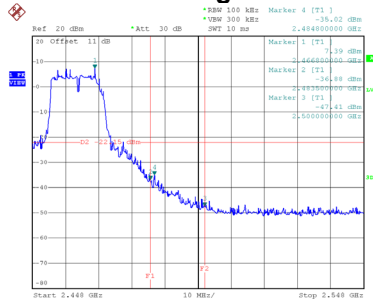
Date: 27.JUN.2024 09:35:07

Bandedge-CH01



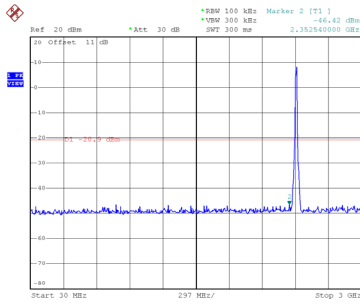
Date: 27.JUN.2024 09:51:11

Bandedge-CH11

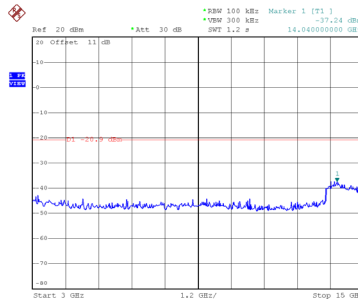


Date: 27.JUN.2024 09:59:57

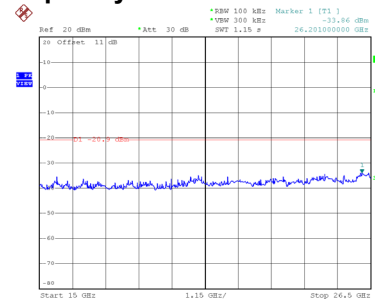
CH01 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 09:51:41

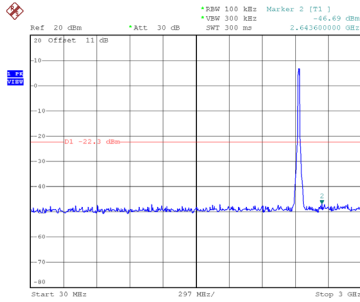


Date: 27.JUN.2024 09:51:50

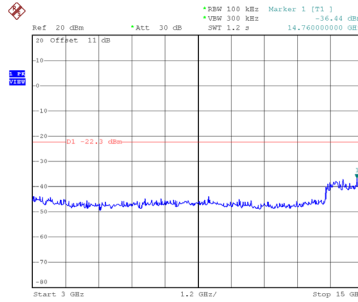


Date: 27.JUN.2024 09:51:59

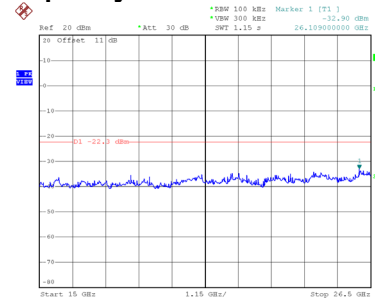
CH06 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 09:53:18

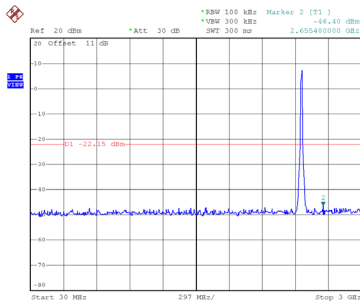


Date: 27.JUN.2024 09:53:27

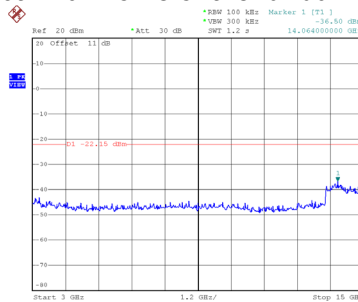


Date: 27.JUN.2024 09:53:36

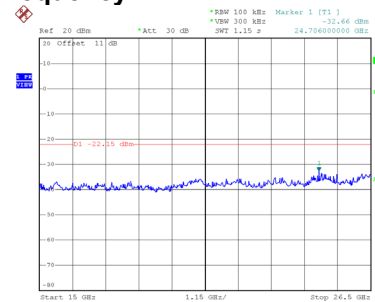
CH11 – 10th Harmonic of the fundamental frequency



Date: 27.JUN.2024 10:00:56



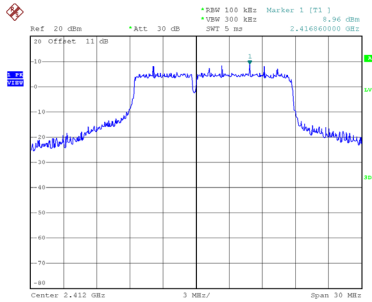
Date: 27.JUN.2024 10:01:06



Date: 27.JUN.2024 10:01:15

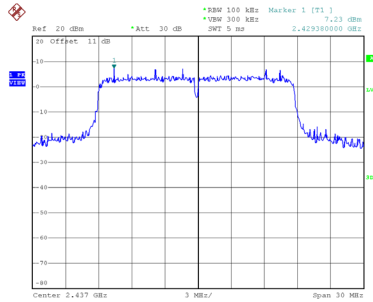
Test Mode TX N(HT20) Mode_Ant. 1

Reference Level-CH01



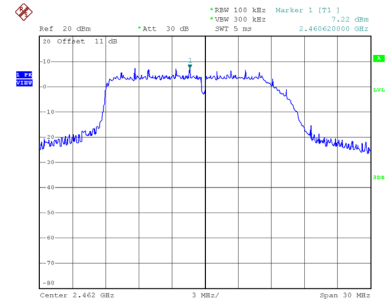
Date: 27.JUN.2024 09:36:46

Reference Level-CH06



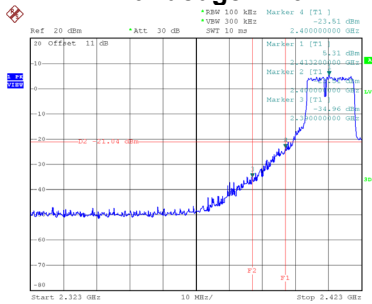
Date: 27.JUN.2024 09:37:30

Reference Level-CH11



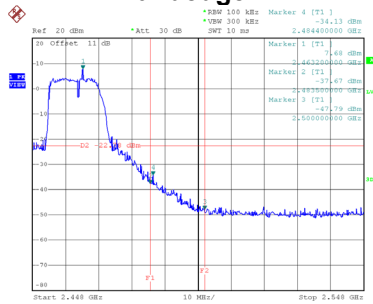
Date: 27.JUN.2024 09:38:20

Bandedge-CH01



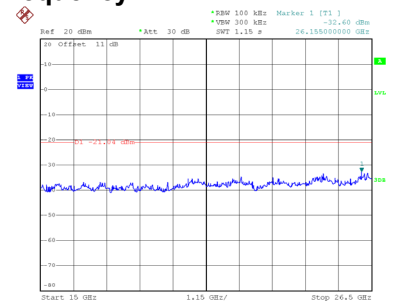
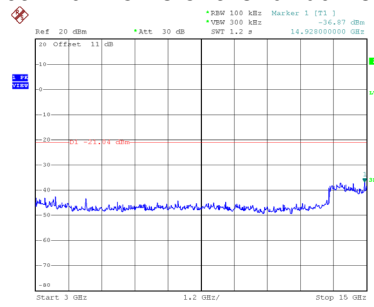
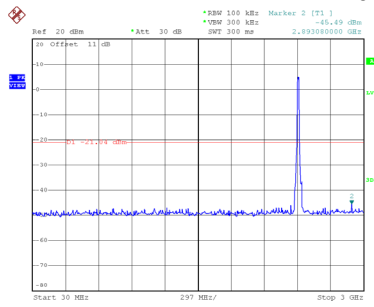
Date: 27.JUN.2024 10:03:42

Bandedge-CH11

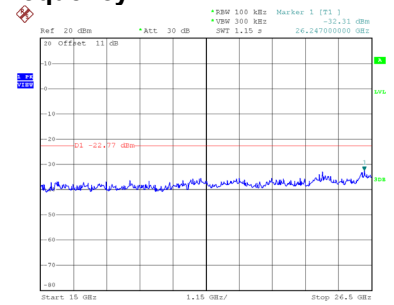
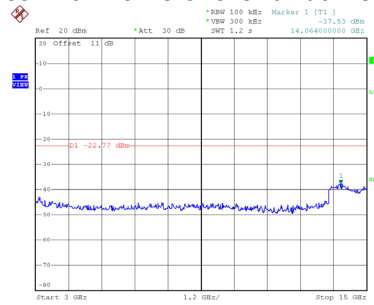
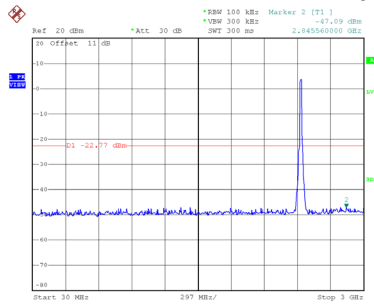


Date: 27.JUN.2024 10:07:05

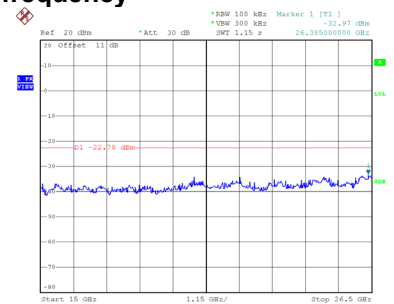
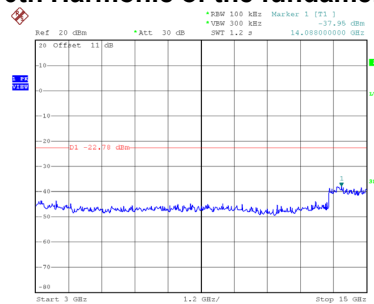
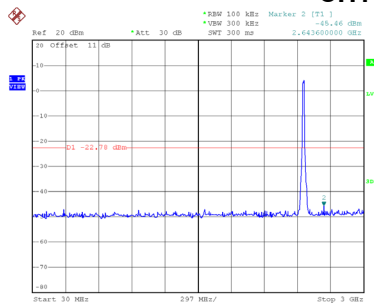
CH01 – 10th Harmonic of the fundamental frequency



CH06 – 10th Harmonic of the fundamental frequency



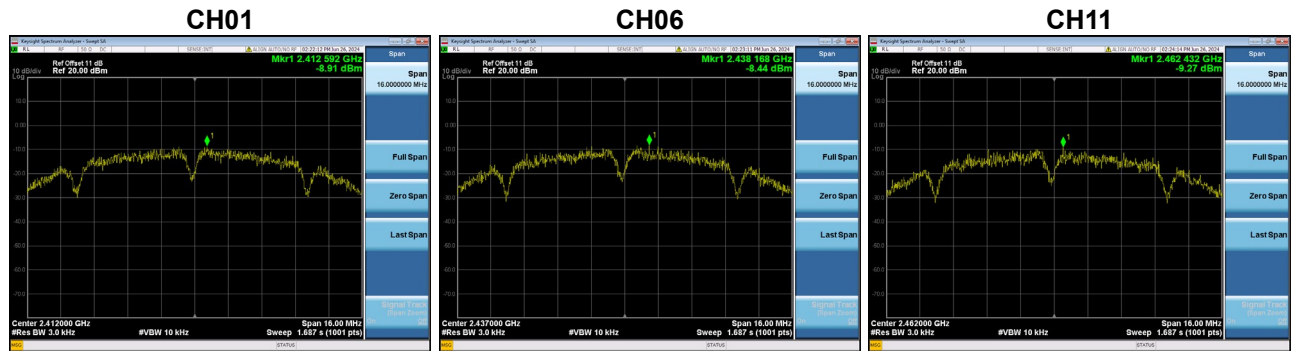
CH11 – 10th Harmonic of the fundamental frequency



APPENDIX H - POWER SPECTRAL DENSITY

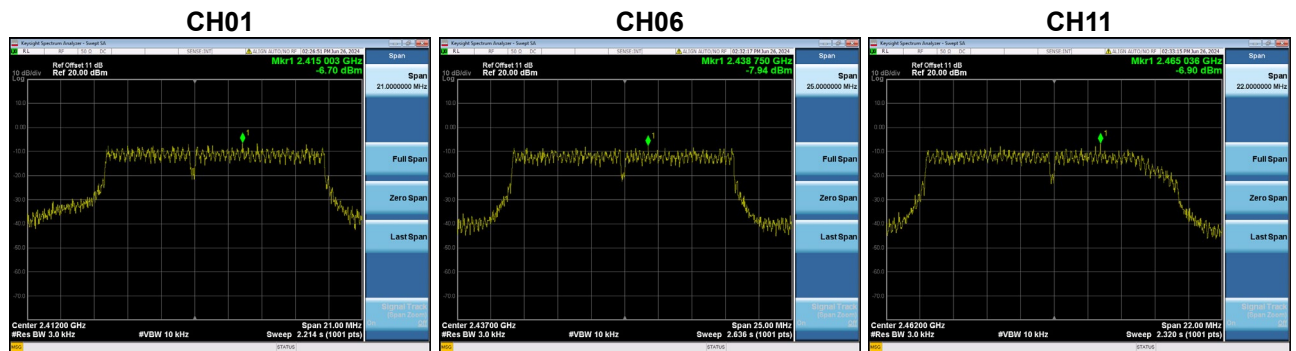
Test Mode	TX B Mode_Ant. 1
-----------	------------------

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-8.91	8.00	Complies
06	2437	-8.44	8.00	Complies
11	2462	-9.27	8.00	Complies



Test Mode	TX G Mode_Ant. 1
-----------	------------------

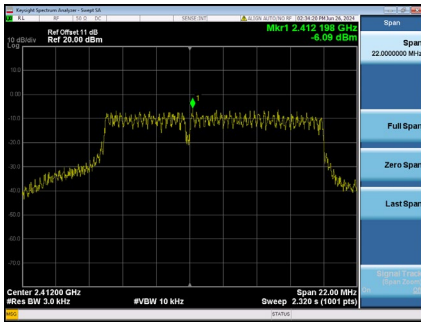
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-6.70	8.00	Complies
06	2437	-7.94	8.00	Complies
11	2462	-6.90	8.00	Complies



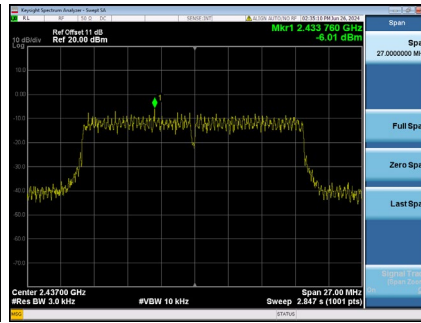
Test Mode	TX N(HT20) Mode_Ant. 1
-----------	------------------------

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-6.09	8.00	Complies
06	2437	-6.01	8.00	Complies
11	2462	-6.84	8.00	Complies

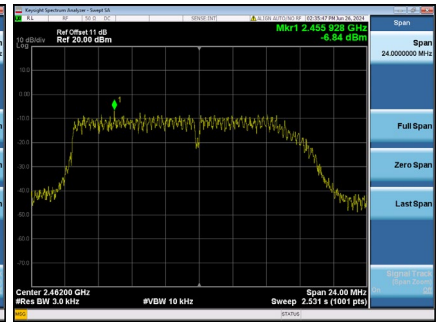
CH01



CH06



CH11



End of Test Report