FCC &ISED Radio Test Report

FCC ID: ACJ-SU-GX70
IC:216A-SUGX70

The report concerns: Original Grant

Report Reference No. ..... :	22EFSS10067 11231
Date Sample(s) Received ..... :	2022-11-25
Date of Tested ..... :	From 2022-11-25 to 2022-12-28
Date of issue ..... :	2022-12-28
Testing Laboratory ..... :	DongGuanShuoXin Electronic Technology Co., Ltd.
Address ..... :	Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China
Applicant's name for FCC ..... :	Panasonic Corporation of North America
Address for FCC ..... :	Two Riverfront Plaza, 9th Floor, Newark, New Jersey,07102-5490,United States
Applicant's name for IC ..... :	Panasonic Canada Inc.
Address for IC ..... :	5770 Ambler Drive Mississauga ON L4W 2T3 Canada
Manufacturer ..... :	Panasonic Corporation
Equipment ..... :	Network Audio Amplifier
Trade Mark ..... :	Technics
Model ..... :	SU-GX70
Ratings ..... :	I/P: 120V/60Hz 63W

Test Engineer: Blue Qiu

Responsible Engineer : Smile Wang

Authorized Signatory: King Wang

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1 TEST REPORT DECLARE

Applicant for FCC	Panasonic Corporation of North America
Address for FCC	Two Riverfront Plaza, 9th Floor, Newark, New Jersey,07102-5490,United States
Applicant for IC	Panasonic Canada Inc.
Address for IC	5770 Ambler Drive Mississauga ON L4W 2T3 Canada
Manufacturer	Panasonic Corporation
Address	1006, Oaza Kadoma, kadoma-shi, Osaka, 571-8501, Japan
Factory	Panasonic AVC Networks Johor Malaysia
Address	IE,PLO 460, Jalan Bandar, 81700 Pasir Gudang, Johor, Malaysia
Equipment	Network Audio Amplifier
Model No.	SU-GX70
Trade Mark	Technics
Standard	FCC Part15, Subpart C (15.247) RSS-247 Issue 2, Feb. 2017 RSS-Gen Issue 5, Apr. 2018 ANSI C63.10-2013

We Declare:

The equipment described above is tested by DongGuanShuoXin Electronic Technology Co., Ltd(ATT). and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuanShuoXin Electronic Technology Co., Ltd.(ATT) is assumed of full responsibility for the accuracy and completeness of these tests.

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

ATT'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. ATT shall have no liability for any declarations, inferences or generalizations drawn by the client or others from ATT issued reports.

2 SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below:

Standard(s) Section		Test Item	Judgment	Remark
FCC	ISED			
15.207	RSS-Gen8.8	AC Power Line Conducted Emissions	PASS	------
15.247(d) 15.205(a) 15.209(a)	RSS-247 5.5 RSS-Gen8.9 RSS-Gen8.10	Radiated Emissions	PASS	------
15.247(a)(2)	RSS-247 5.2 (a) RSS-Gen6.7	Bandwidth	PASS	------
15.247(b)(3)	RSS-247 5.4 (d)	Maximum Output Power	PASS	------
15.247(d)	RSS-247 5.5	ConductedSpurious Emission	PASS	------
15.247(e)	RSS-247 5.2 (b)	Power Spectral Density	PASS	------
-	RSS-Gen 6.11	Frequency Stability	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 MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Uncertainty for Conduction emission test (9kHz-150kHz)	3.7 dB
Uncertainty for Conduction emission test (150kHz-30MHz)	3.3 dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	6.10 dB (Polarize: V)
	5.08 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz-6GHz)	5.01 dB (Polarize: V)
	5.01 dB (Polarize: H)
Uncertainty for Radiation Emission test (6GHz-18GHz)	5.26 dB (Polarize: V)
	5.26 dB (Polarize: H)
Uncertainty for Radiation Emission test (18GHz-40GHz)	5.06 dB (Polarize: V)
	5.06 dB (Polarize: H)
Uncertainty for radio frequency	±0.048kHz
Uncertainty for conducted RF Power	±0.32dB

Note:

This uncertainty represents an expanded uncertainty expressed at approximately the 95%confidence level using a coverage factor of k=2.

Test Facility:

The Test site used by DongGuanShuoXin Electronic Technology Co., Ltd. to collect test data is located on the Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China

The test facility is recognized, certified, or accredited by the following organizations:

Item	Registration No.	Expiration Date
CNAS	L3098	2024-08-27
A2LA	4893.01	2024-06-30
Innovation, Science and Economic Development Canada (ISED)	11033A CAB identifer:CN0083	2024-06-30
Federal Communications Commission (FCC)	171688 Designation No.:CN1235	2024-06-30

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Network Audio Amplifier	
Brand Name	Technics	
Test Model	SU-GX70	
Series Model	N/A	
Model Difference(s)	N/A	
Hardware Version	PR	
Software Version	22.02	
Power Source	AC Mains	
Power Rating	120V~ 63W 60Hz	
Operation Frequency	2412 MHz~ 2462 MHz	
Modulation Technology	IEEE 802.11b:DSSS IEEE 802.11g:OFDM IEEE 802.11n:OFDM IEEE 802.11ax:OFDMA	
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,ax: up to 300 Mbps	
Operating Mode	IEEE 802.11b:1TX(Ant 1 or Ant 2) IEEE 802.11g:1TX(Ant 1 or Ant 2) IEEE 802.11n (HT20):2TX(Ant 1+Ant 2) IEEE 802.11ax (HE20):2TX(Ant 1+Ant 2)	
Antenna Information	Antenna Type: PCB	Maximum Peak Gain:1.69dBi
Max. Output Power	IEEE 802.11b: 15.74dBm(0.0375W) IEEE 802.11g: 21.34dBm(0.1361W) IEEE 802.11n (HT20):24.31dBm(0.2698W) IEEE 802.11ax (HE20):23.42dBm(0.2198W)	

Note:

1. 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), IEEE 802.11ax (HE20)							
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		

3.2 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-20 MHz Mode Channel 01/06/11
Mode 4	TX AX-20 MHz Mode Channel01/06/11
Mode 5	TX N-20 MHz Mode Channel 06

Following mode(s) as (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 5	TX N-20 MHz Mode Channel 06

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 5	TX N-20 MHz 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-20 MHz Mode Channel 01/06/11
Mode 4	TX AX-20 MHz Mode Channel01/06/11

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-20 MHz Mode Channel 01/06/11
Mode 4	TX AX-20 MHz Mode Channel01/06/11

NOTE:

(1) The measurements are performed at the high, middle, low available channels.

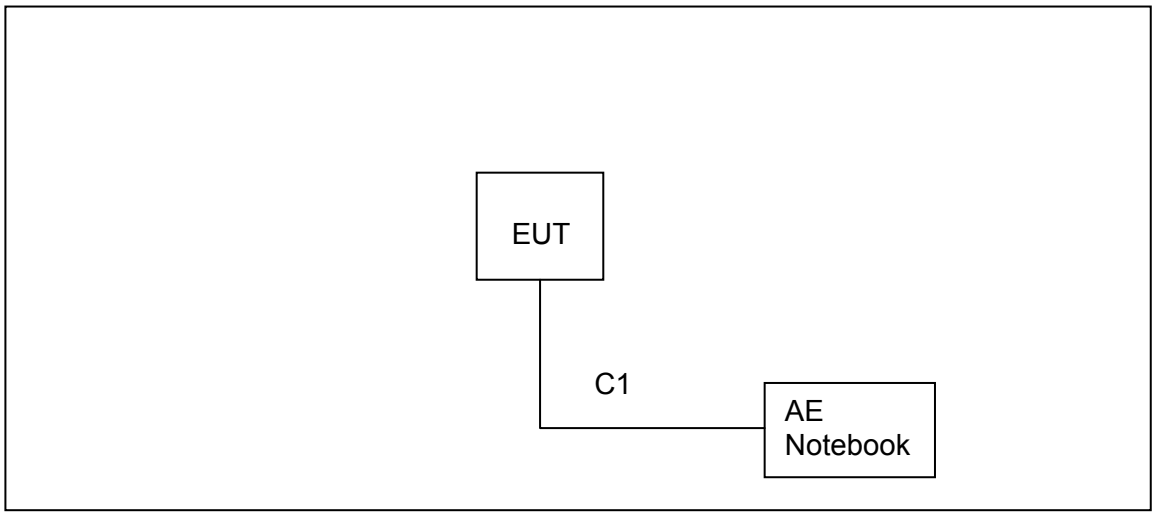
(2) 802.11b mode: DBPSK (1Mbps)
802.11g mode: OFDM (6Mbps)
802.11n HT20 mode : BPSK (13Mbps)
802.11ax HE20mode : BPSK (27Mbps)
For radiated emission tests, the highest output powers were set for final test.

(3)For radiated emission below 1GHzand AC power line conducted emissions test, the IEEE 802.11n20 channel 06 is found to be the worst case and recorded.

3.3 PARAMETERS OF TEST SOFTWARE

Test Software	Stream1955		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	52	52	52
IEEE 802.11g	52	52	52
IEEE 802.11n (HT20)	52	52	52
IEEE 802.11ax (HE20)	46	46	46

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
AE	Notebook	Lenovo	/	/

Item	Cable Type	Shielded Type	Ferrite Core	Length
C1	DC Cable	NO	NO	0.8m

3.6 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage
AC Power Line Conducted Emissions	25°C	53%	AC 120V
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V
Radiated Emissions-30 MHz to 1GHz	24°C	68%	AC 120V
Radiated Emissions-Above 1000 MHz	24°C	68%	AC 120V
Bandwidth	24.8°C	40.9%	AC 120V
Maximum Output Power	24.8°C	40.9%	AC 120V
Conducted Spurious Emission	24.8°C	40.9%	AC 120V
Power Spectral Density	24.8°C	40.9%	AC 120V

3.7 DUTY CYCLE

All tests were performed under the condition of 100% Duty Cycle

NOTE:
For IEEE 802.11a,IEEE 802.11n (HT20), IEEE 802.11ax (HE20)
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).
For IEEE 802.11n (HT40)
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle < 98%).

4 AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

Frequency of Emission (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 -0.50	66to 56*	56 to 46*
0.50 -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.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

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.

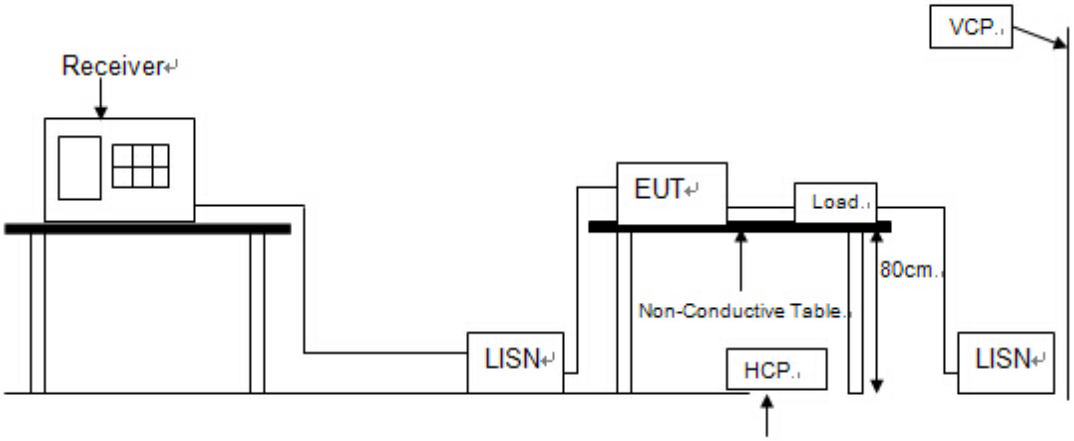
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

4.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	12/11/2023
2	EMI Test Receiver	R&S	ESCI	101308	12/12/2023
3	LISN	AFJ	LS16	16011103219	05/26/2023
4	LISN	Schwarzbeck	NSLK 8127	8127-432	12/11/2022
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

4.4 TESTSETUP



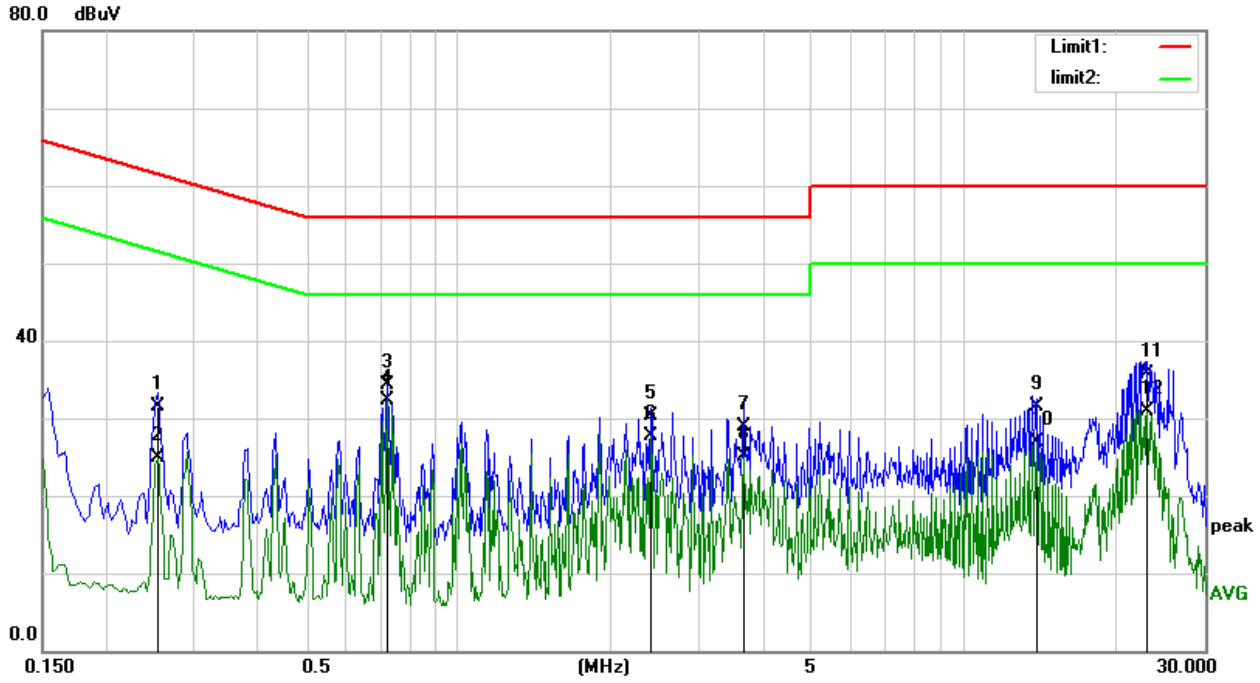
4.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.6 TEST RESULTS

Test Mode:	TX N-20 MHz Mode Channel 06

Line

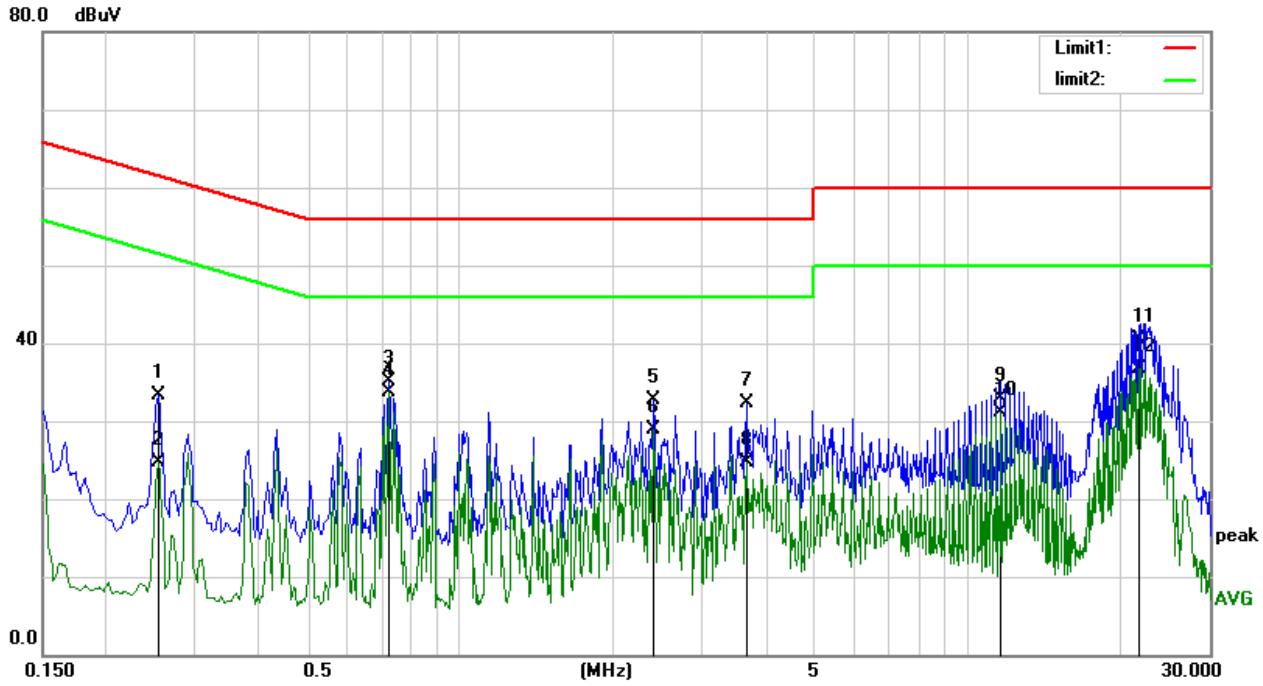


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2540	20.85	10.62	31.47	61.62	-30.15	QP
2	0.2540	14.37	10.62	24.99	51.62	-26.63	AVG
3	0.7220	23.54	10.72	34.26	56.00	-21.74	QP
4	0.7220	21.62	10.72	32.34	46.00	-13.66	AVG
5	2.4060	19.50	10.79	30.29	56.00	-25.71	QP
6	2.4060	16.89	10.79	27.68	46.00	-18.32	AVG
7	3.6700	18.28	10.72	29.00	56.00	-27.00	QP
8	3.6700	14.38	10.72	25.10	46.00	-20.90	AVG
9	13.9260	20.69	10.75	31.44	60.00	-28.56	QP
10	13.9260	16.13	10.75	26.88	50.00	-23.12	AVG
11	23.0380	25.03	10.69	35.72	60.00	-24.28	QP
12	23.0380	20.13	10.69	30.82	50.00	-19.18	AVG

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

Test Mode:	TX N-20 MHz Mode Channel 06

Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2540	22.76	10.62	33.38	61.62	-28.24	QP
2	0.2540	14.07	10.62	24.69	51.62	-26.93	AVG
3	0.7220	24.40	10.72	35.12	56.00	-20.88	QP
4	0.7220	22.94	10.72	33.66	46.00	-12.34	AVG
5	2.4060	22.01	10.79	32.80	56.00	-23.20	QP
6	2.4060	18.06	10.79	28.85	46.00	-17.15	AVG
7	3.6700	21.57	10.72	32.29	56.00	-23.71	QP
8	3.6700	13.95	10.72	24.67	46.00	-21.33	AVG
9	11.6420	22.08	10.75	32.83	60.00	-27.17	QP
10	11.6420	20.33	10.75	31.08	50.00	-18.92	AVG
11	21.7700	29.74	10.70	40.44	60.00	-19.56	QP
12	21.7700	26.03	10.70	36.73	50.00	-13.27	AVG

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

5 RADIATED EMISSIONSTEST

5.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a) and RSS-Gen 8.10, then the 15.209(a) and RSS-Gen 8.9limit in the table below has to be followed.

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

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 (9 kHz-30 MHz)

Frequency (MHz)	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (meters)
0.009-0.490	6.37/F(kHz)	300
0.490-1.705	6.37/F(kHz)	30
1.705-30.0	0.08	30

LIMITS OF RADIATED EMISSION MEASUREMENT (30 MHz-1000MHz)

Frequency (MHz)	Field Strength (μV/m at 3m)
30-88	100
88-216	150
216-960	200
Above 960	500

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m at 3 m)	
	Peak	Average
Above 1000	74	54

NOTE:
(1) The limit for radiated test was performed according to FCC PART 15C and RSS-247.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

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 1GHz)
b. The measuring distance of 3 m 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 1GHz.
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 1GHz)
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 1GHz)
i. The test result is calculated as the following:
(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
(3) Margin = Result - Limit

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

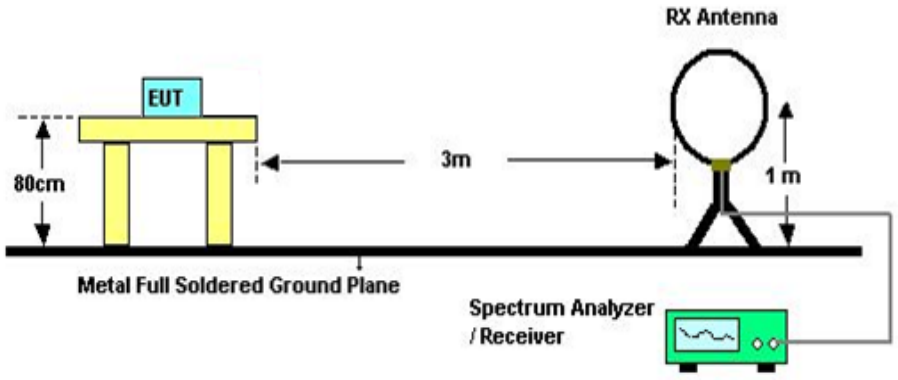
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

5.3 MEASUREMENT INSTRUMENTS LIST

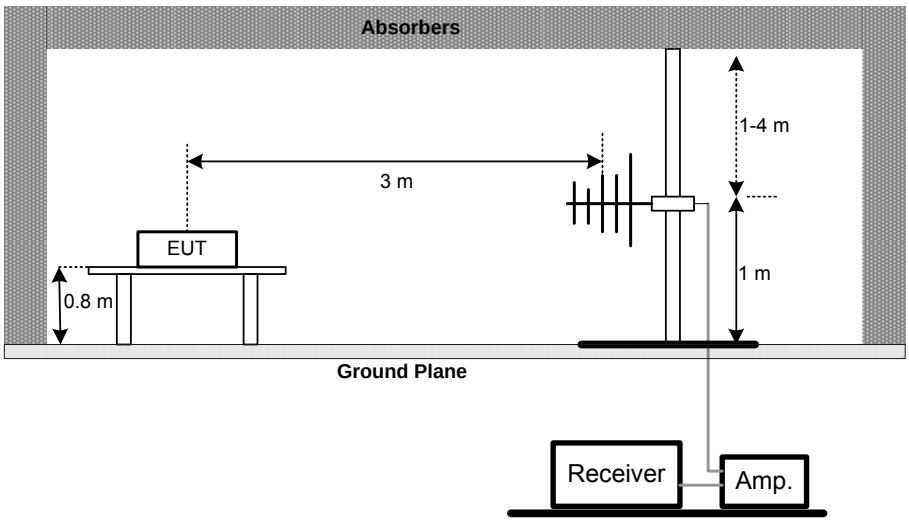
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101307	12/11/2023
2	Spectrum Analyzer	Agilent	E4407B	US40240708	11/10/2023
3	Loop antenna	SCHWARZBECK K	FMZB1519	1519-062	01/15/2024
4	Broadband antenna	SCHWARZBECK	VULB9168	VULB9168-192	07/04/2023
5	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D 1065	04/18/2023
6	Preamplifier Amplifier	HP	8447F	3113A05680	12/19/2023
7	PRE-AMPLIFIER	CY	EMC011830	980136	04/18/2023
8	RF Cable	R&S	Test Cable 4	4	12/11/2023
9	RF Cable	R&S	Test Cable 5	5	12/11/2023
10	RF Cable	R&S	Test Cable 9	9	04/18/2023
11	RF Cable	R&S	Test Cable 10	10	04/18/2023
12	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

5.4 TESTSETUP

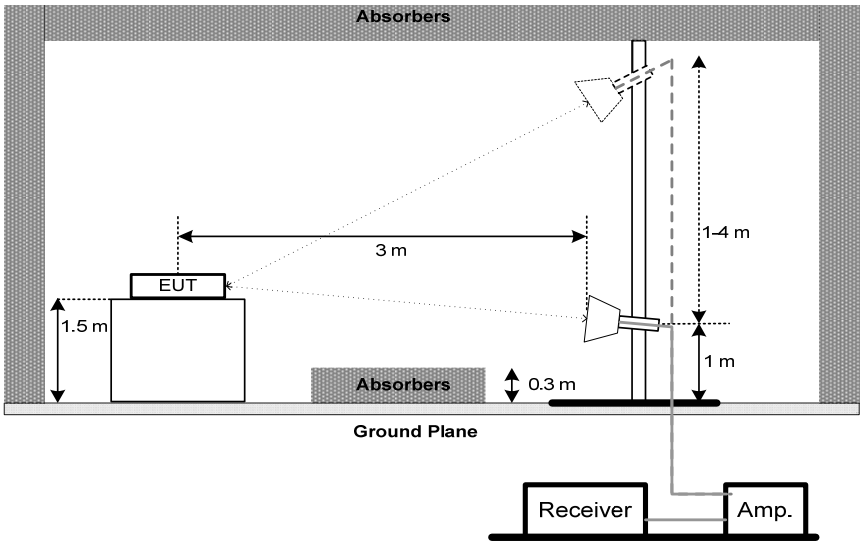
9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz



5.5 EUT OPERATIONCONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS - 9kHz TO 30MHz

Test Mode:	TX N-20 MHz Mode Channel 06

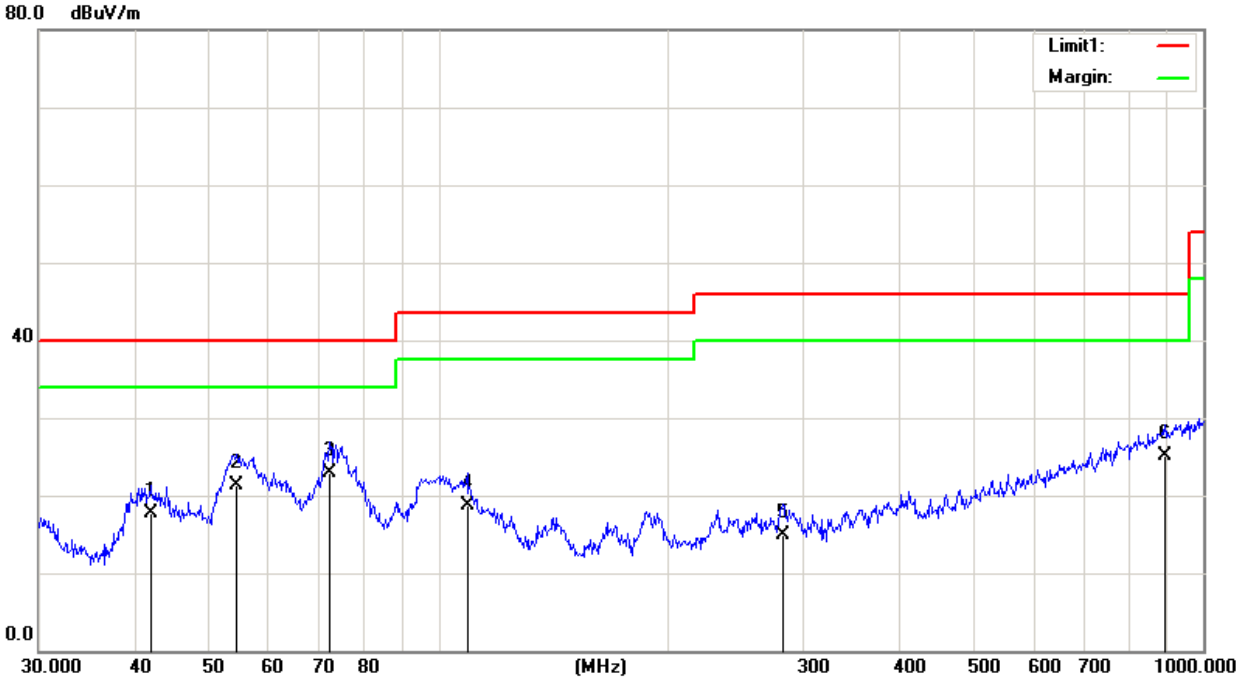
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =20 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor

5.7 TEST RESULTS - 30MHzTO 1000MHz

Test Mode :	TX N-20 MHz Mode Channel 06

Vertical

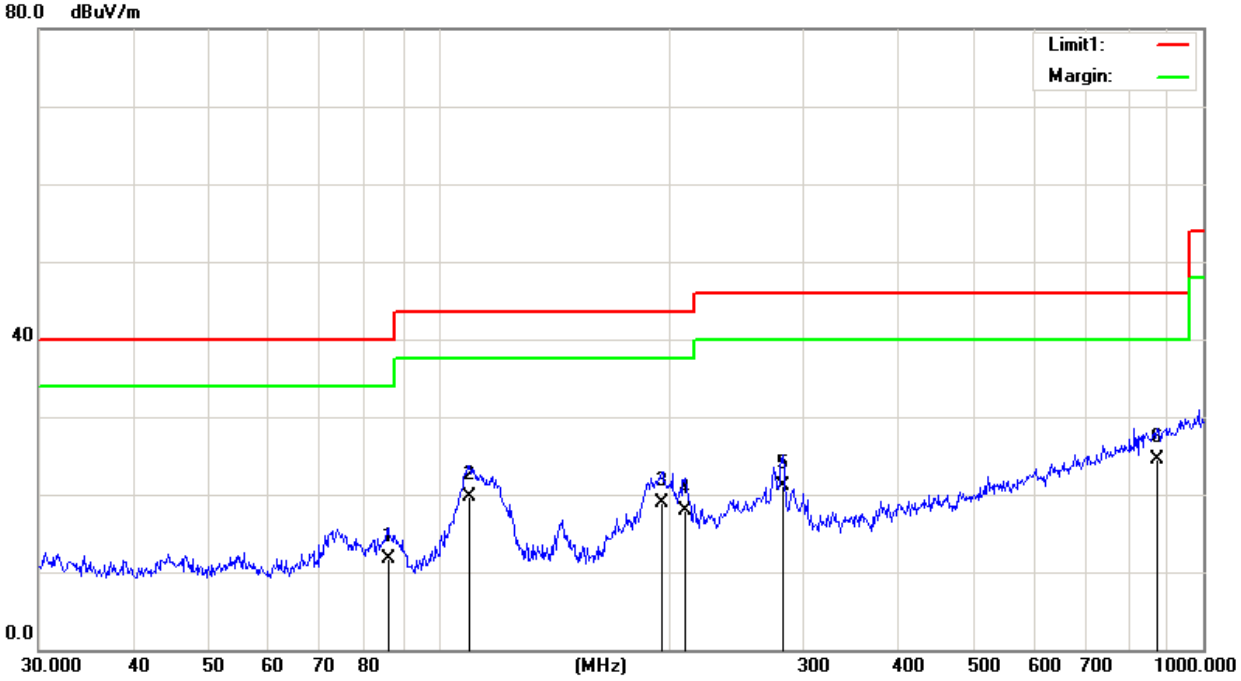


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		42.0066	30.93	-13.30	17.63	40.00	-22.37	QP	200	305	
2		54.4516	33.92	-12.61	21.31	40.00	-18.69	QP	100	206	
3	*	72.0843	37.61	-14.77	22.84	40.00	-17.16	QP	200	241	
4		109.0286	33.08	-14.28	18.80	43.50	-24.70	QP	100	79	
5		281.9946	22.86	-8.02	14.84	46.00	-31.16	QP	100	34	
6		890.7278	22.01	3.15	25.16	46.00	-20.84	QP	100	84	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Test Mode :	TX N-20 MHz Mode Channel 06

Horizontal



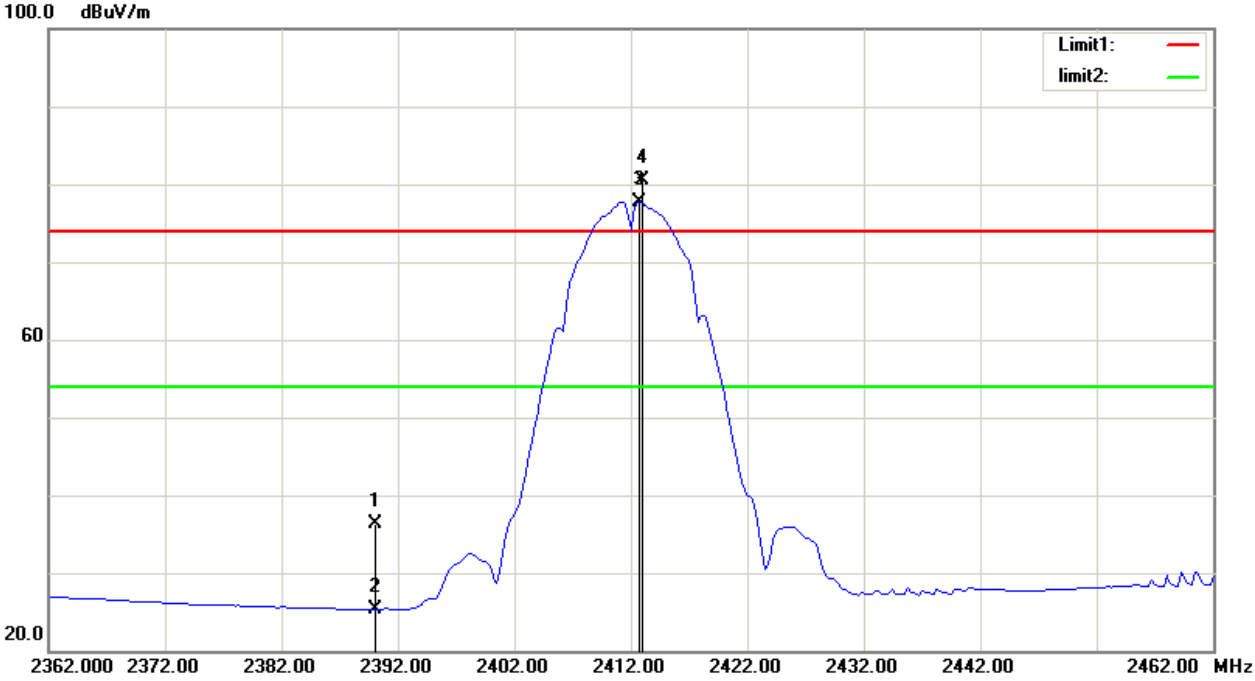
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		85.8984	28.99	-17.30	11.69	40.00	-28.31	QP	300	245	
2		109.7960	33.90	-14.23	19.67	43.50	-23.83	QP	100	178	
3		195.8220	28.50	-9.60	18.90	43.50	-24.60	QP	200	315	
4		210.0482	26.76	-8.76	18.00	43.50	-25.50	QP	200	217	
5		281.9946	27.31	-6.22	21.09	46.00	-24.91	QP	100	98	
6	*	869.1302	21.93	2.60	24.53	46.00	-21.47	QP	100	78	

*:Maximum data x:Over limit !:over margin 〈Reference Only

5.8 TEST RESULTS- ABOVE 1000MHz(BAND EDGE)

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical

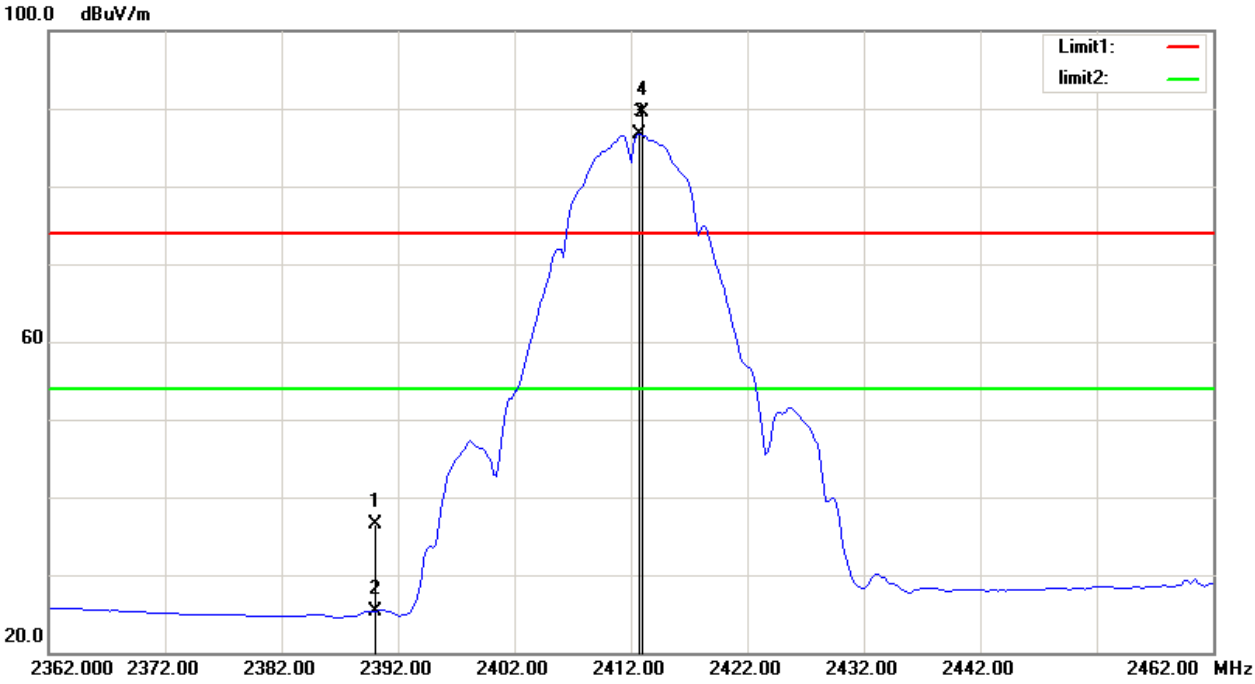


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	48.36	-12.02	36.34	74.00	-37.66	peak	150	293	
2		2390.000	37.34	-12.02	25.32	54.00	-28.68	AVG	150	293	
3	*	2412.750	89.66	-11.95	77.71	54.00	23.71	AVG	150	293	NO LIMIT
4	X	2413.000	92.44	-11.95	80.49	74.00	6.49	peak	150	293	NO LIMIT

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal

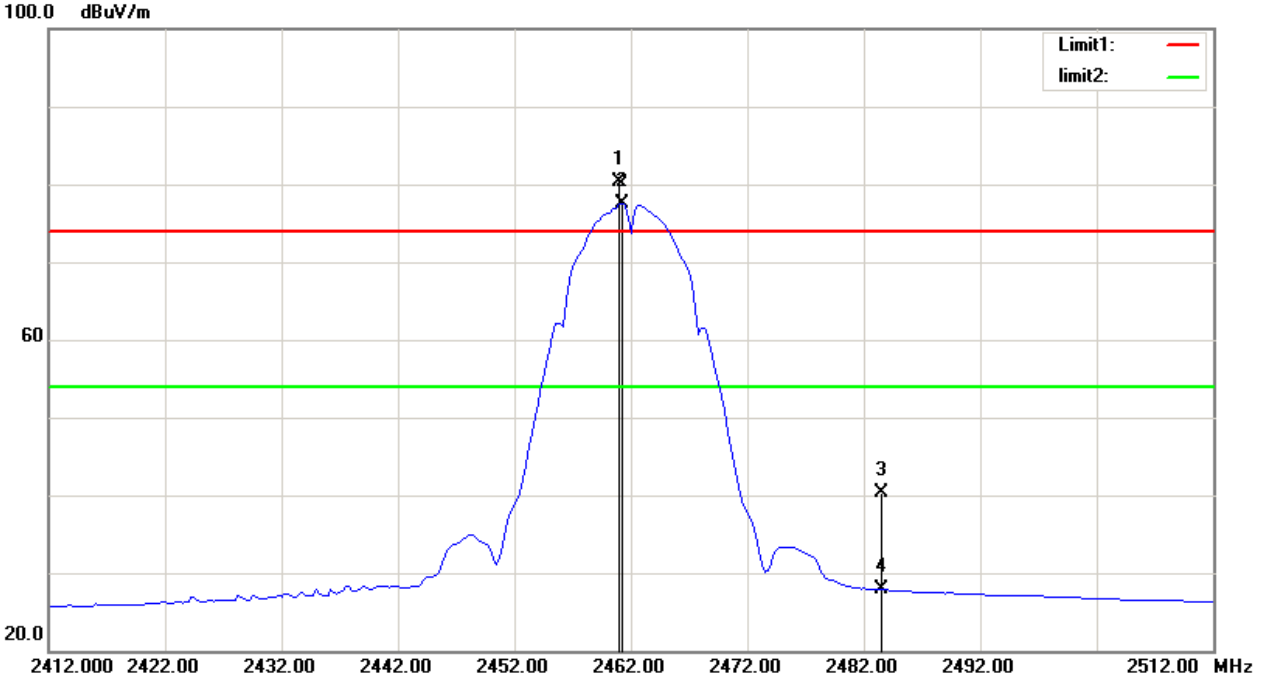


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	48.48	-12.02	36.46	74.00	-37.54	peak	150	360	
2		2390.000	37.32	-12.02	25.30	54.00	-28.70	AVG	150	360	
3	*	2412.750	98.68	-11.95	86.73	54.00	32.73	AVG	150	360	NO LIMIT
4	X	2413.000	101.43	-11.95	89.48	74.00	15.48	peak	150	360	NO LIMIT

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

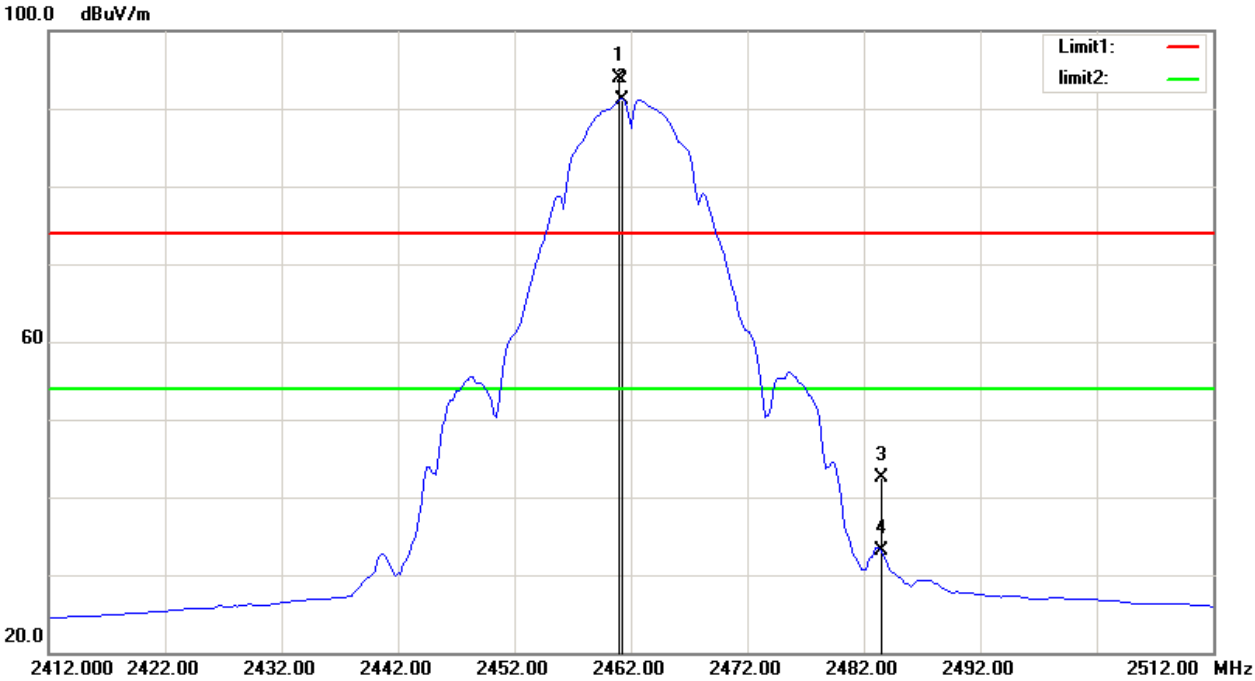


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2461.000	92.02	-11.79	80.23	74.00	6.23	peak	150	293	NO LIMIT
2	*	2461.250	89.33	-11.79	77.54	54.00	23.54	AVG	150	293	NO LIMIT
3		2483.500	51.97	-11.72	40.25	74.00	-33.75	peak	150	293	
4		2483.500	39.60	-11.72	27.88	54.00	-26.12	AVG	150	293	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

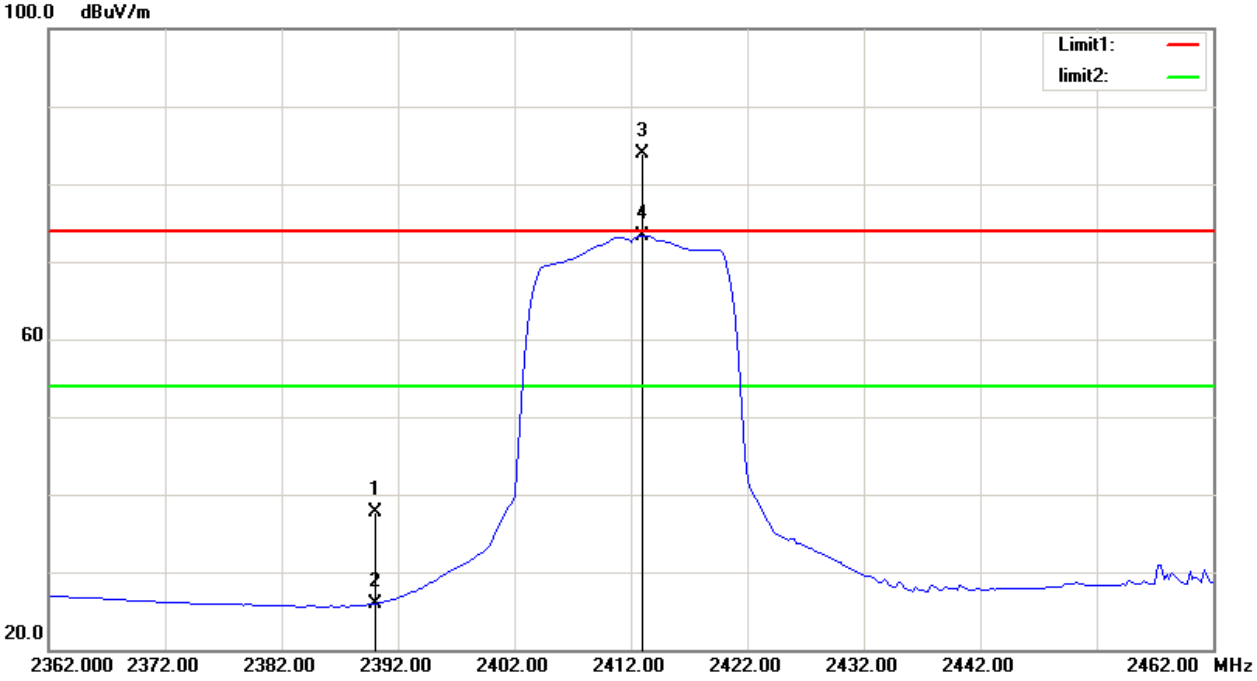


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2461.000	105.62	-11.79	93.83	74.00	19.83	peak	150	360	NO LIMIT
2	*	2461.250	102.99	-11.79	91.20	54.00	37.20	AVG	150	360	NO LIMIT
3		2483.500	54.13	-11.72	42.41	74.00	-31.59	peak	150	360	
4		2483.500	44.75	-11.72	33.03	54.00	-20.97	AVG	150	360	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

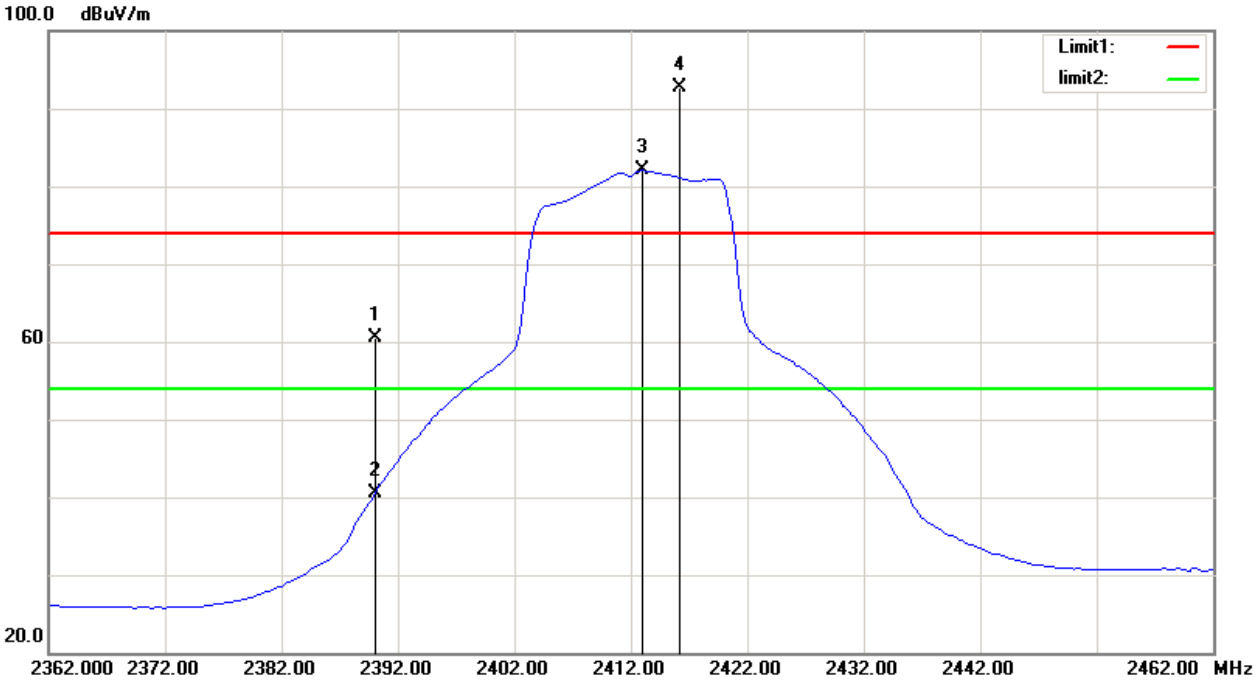


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	49.64	-12.02	37.62	74.00	-36.38	peak	150	294	
2		2390.000	37.96	-12.02	25.94	54.00	-28.06	AVG	150	294	
3	X	2413.000	95.89	-11.95	83.94	74.00	9.94	peak	150	294	NO LIMIT
4	*	2413.000	85.23	-11.95	73.28	54.00	19.28	AVG	150	294	NO LIMIT

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

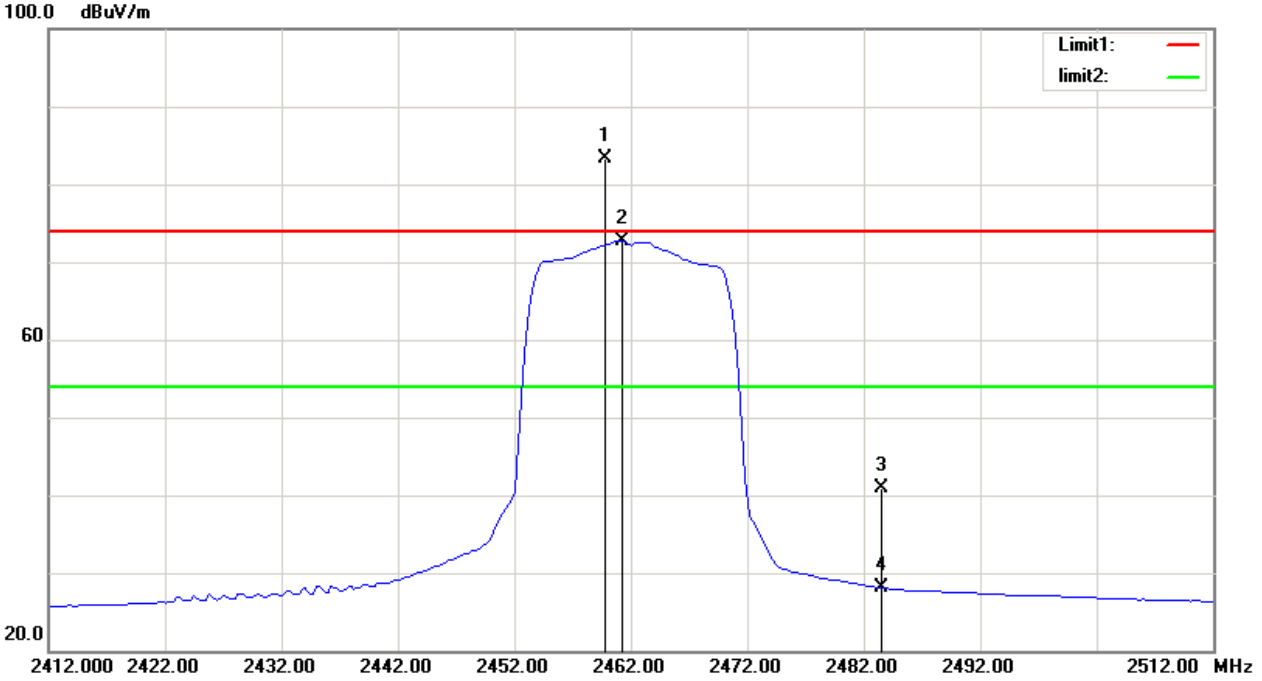


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	72.55	-12.02	60.53	74.00	-13.47	peak	150	0	
2		2390.000	52.48	-12.02	40.46	54.00	-13.54	AVG	150	0	
3	*	2413.000	93.96	-11.95	82.01	54.00	28.01	AVG	150	0	NO LIMIT
4	X	2416.250	104.72	-11.94	92.78	74.00	18.78	peak	150	0	NO LIMIT

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

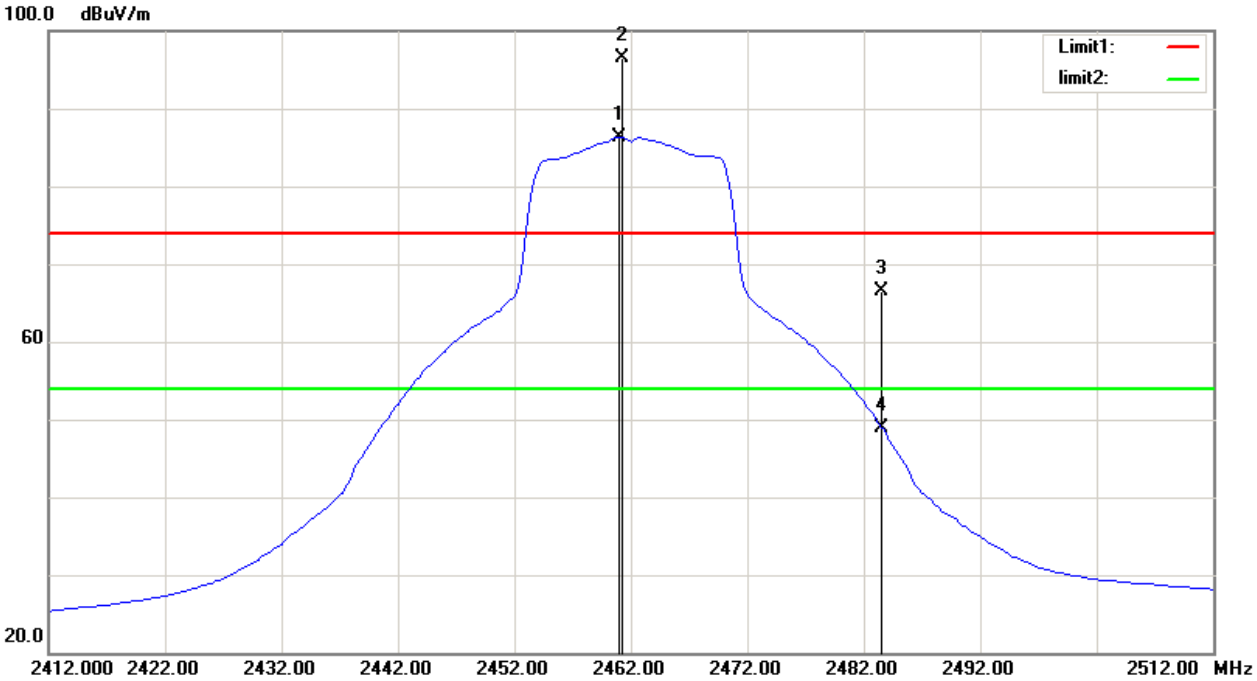


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2459.750	95.09	-11.79	83.30	74.00	9.30	peak	150	294	NO LIMIT
2	*	2461.250	84.45	-11.79	72.66	54.00	18.66	AVG	150	294	NO LIMIT
3		2483.500	52.63	-11.72	40.91	74.00	-33.09	peak	150	294	
4		2483.500	39.81	-11.72	28.09	54.00	-25.91	AVG	150	294	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

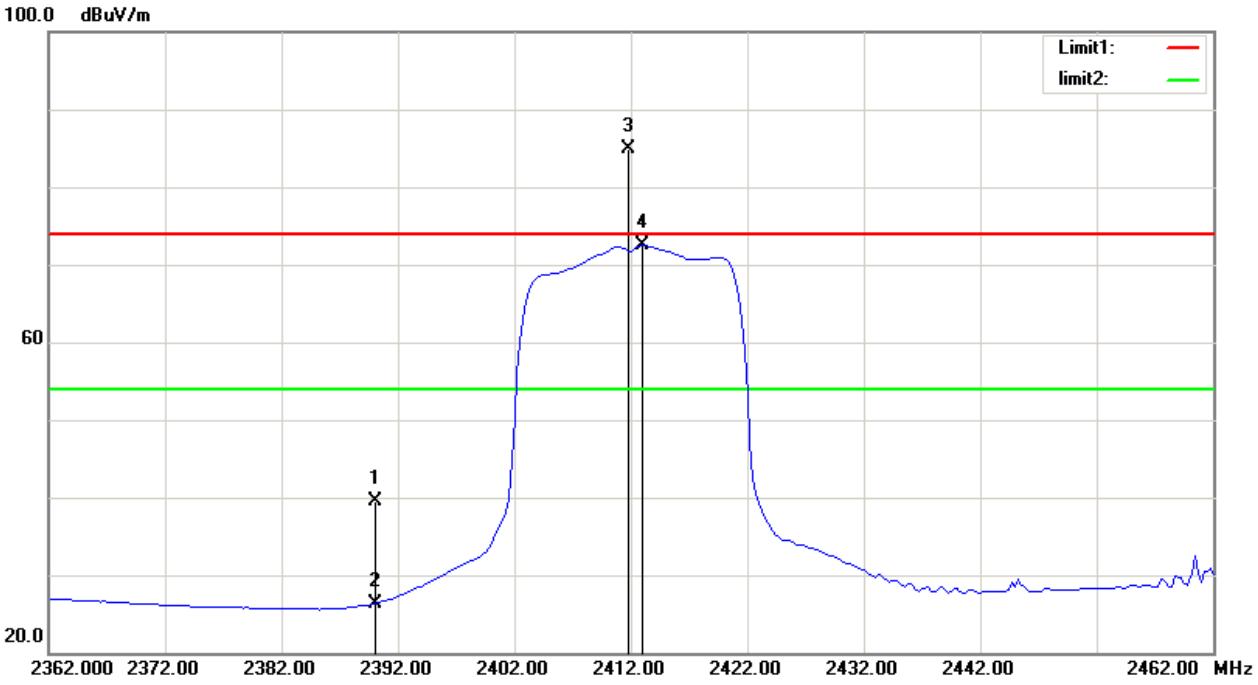


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	2461.000	98.05	-11.79	86.26	54.00	32.26	AVG	150	360	NO LIMIT
2	X	2461.250	108.37	-11.79	96.58	74.00	22.58	peak	150	360	NO LIMIT
3		2483.500	78.12	-11.72	66.40	74.00	-7.60	peak	150	360	
4		2483.500	60.72	-11.72	49.00	54.00	-5.00	AVG	150	360	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Vertical

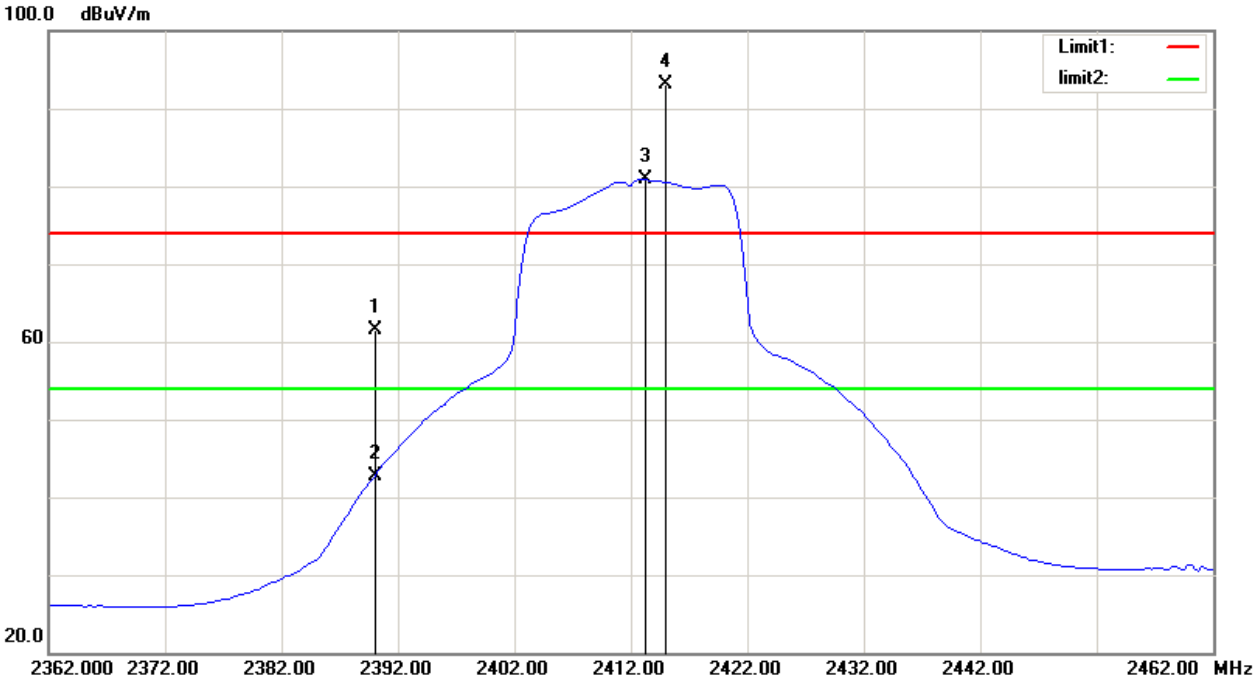


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	51.57	-12.02	39.55	74.00	-34.45	peak	150	292	
2		2390.000	38.37	-12.02	26.35	54.00	-27.65	AVG	150	292	
3	X	2411.750	96.86	-11.96	84.90	74.00	10.90	peak	150	292	NO LIMIT
4	*	2413.000	84.37	-11.95	72.42	54.00	18.42	AVG	150	292	NO LIMIT

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Horizontal

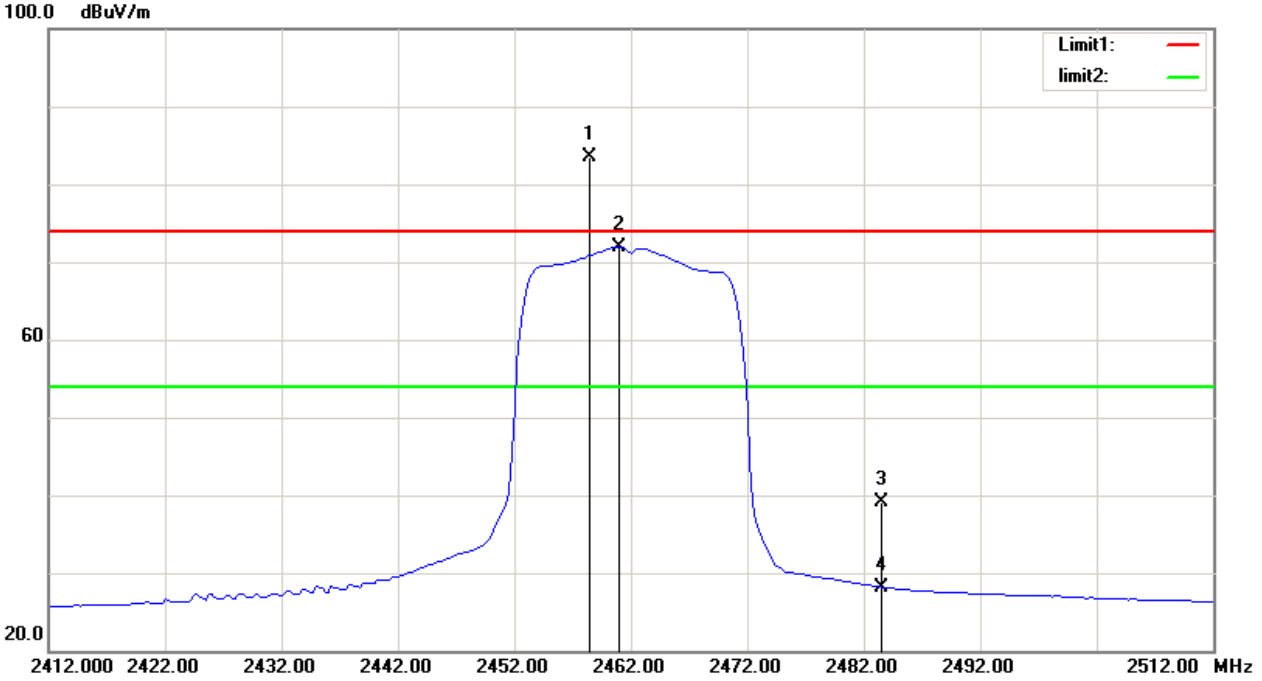


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	73.47	-12.02	61.45	74.00	-12.55	peak	150	360	
2		2390.000	54.70	-12.02	42.68	54.00	-11.32	AVG	150	360	
3	*	2413.250	92.93	-11.95	80.98	54.00	26.98	AVG	150	360	NO LIMIT
4	X	2415.000	104.98	-11.95	93.03	74.00	19.03	peak	150	360	NO LIMIT

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Vertical

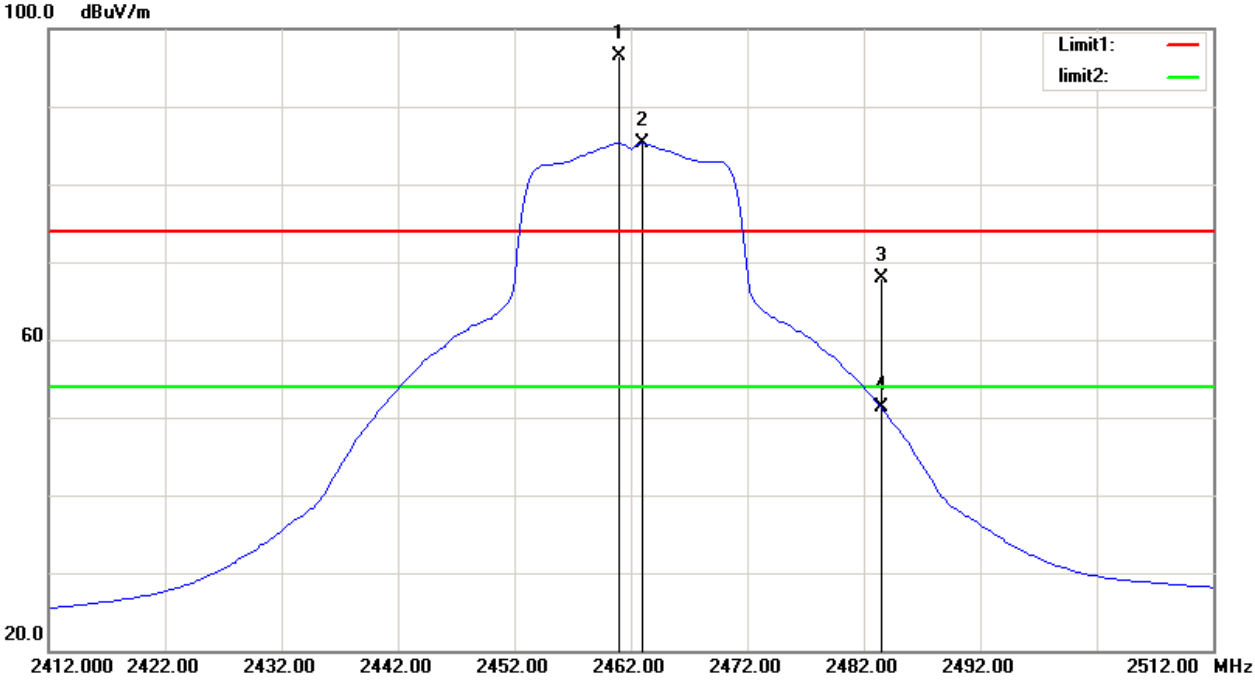


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2458.500	95.27	-11.80	83.47	74.00	9.47	peak	150	292	NO LIMIT
2	*	2461.000	83.71	-11.79	71.92	54.00	17.92	AVG	150	292	NO LIMIT
3		2483.500	50.78	-11.72	39.06	74.00	-34.94	peak	150	292	
4		2483.500	39.89	-11.72	28.17	54.00	-25.83	AVG	150	292	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Horizontal

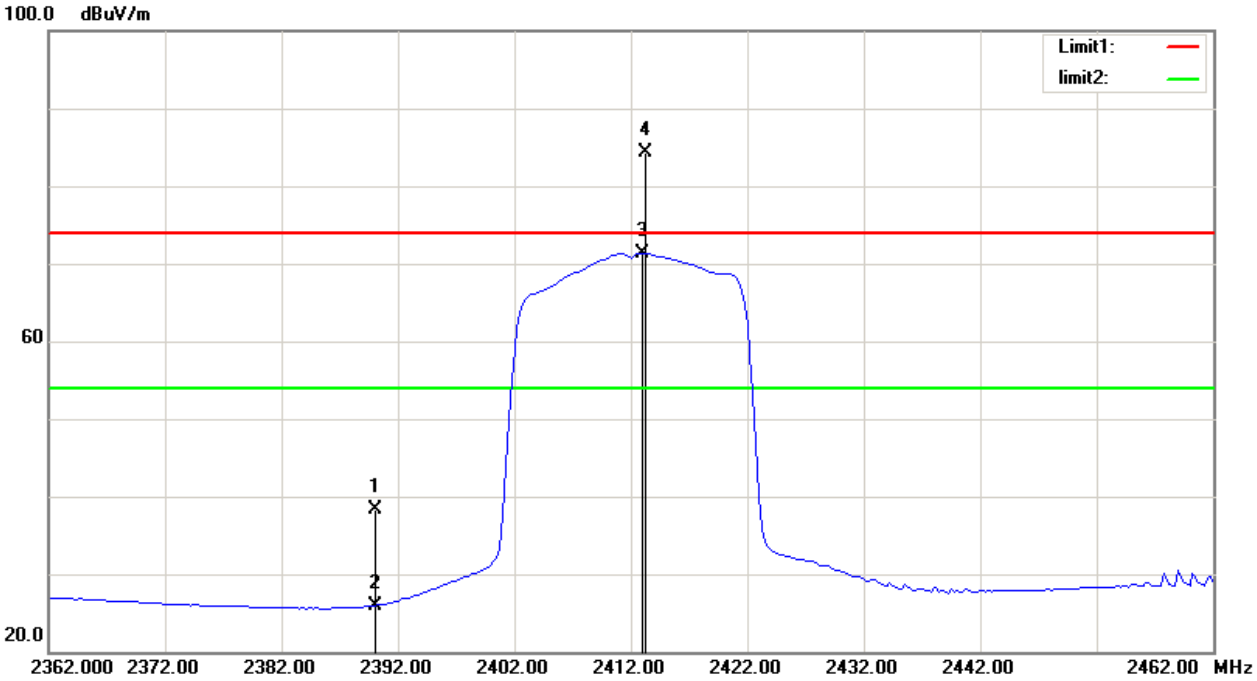


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2461.000	108.29	-11.79	96.50	74.00	22.50	peak	150	360	NO LIMIT
2	*	2463.000	97.02	-11.78	85.24	54.00	31.24	AVG	150	360	NO LIMIT
3		2483.500	79.66	-11.72	67.94	74.00	-6.06	peak	150	360	
4		2483.500	63.00	-11.72	51.28	54.00	-2.72	AVG	150	360	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2412MHz

Vertical

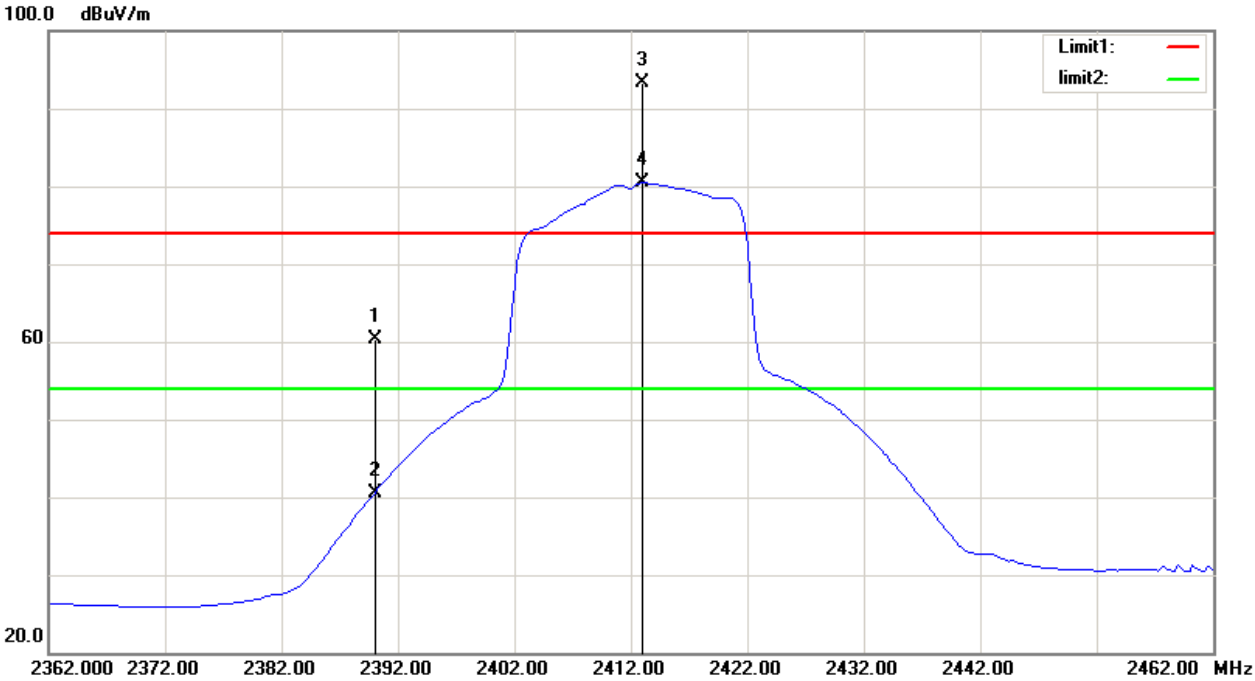


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	50.26	-12.02	38.24	74.00	-35.76	peak	150	293	
2		2390.000	37.95	-12.02	25.93	54.00	-28.07	AVG	150	293	
3	*	2413.000	83.29	-11.95	71.34	54.00	17.34	AVG	150	293	NO LIMIT
4	X	2413.250	96.18	-11.95	84.23	74.00	10.23	peak	150	293	NO LIMIT

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2412MHz

Horizontal

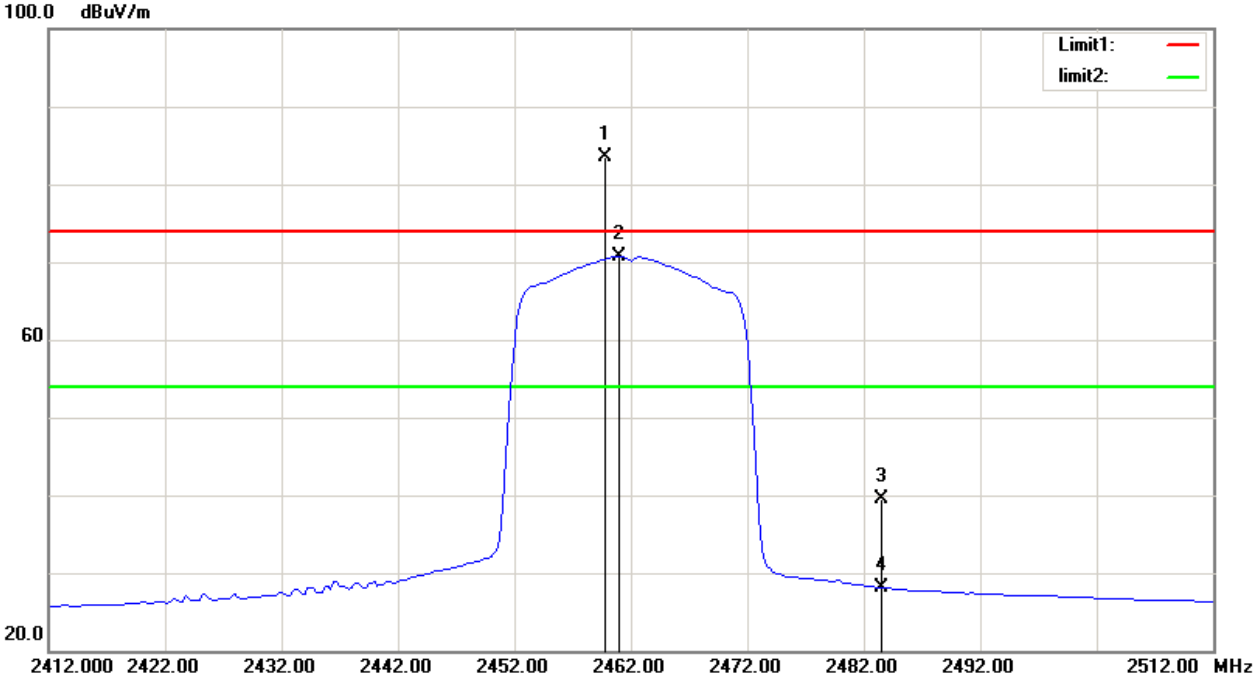


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		2390.000	72.31	-12.02	60.29	74.00	-13.71	peak	150	0	
2		2390.000	52.60	-12.02	40.58	54.00	-13.42	AVG	150	0	
3	X	2413.000	105.21	-11.95	93.26	74.00	19.26	peak	150	0	NO LIMIT
4	*	2413.000	92.36	-11.95	80.41	54.00	26.41	AVG	150	0	NO LIMIT

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2462MHz

Vertical

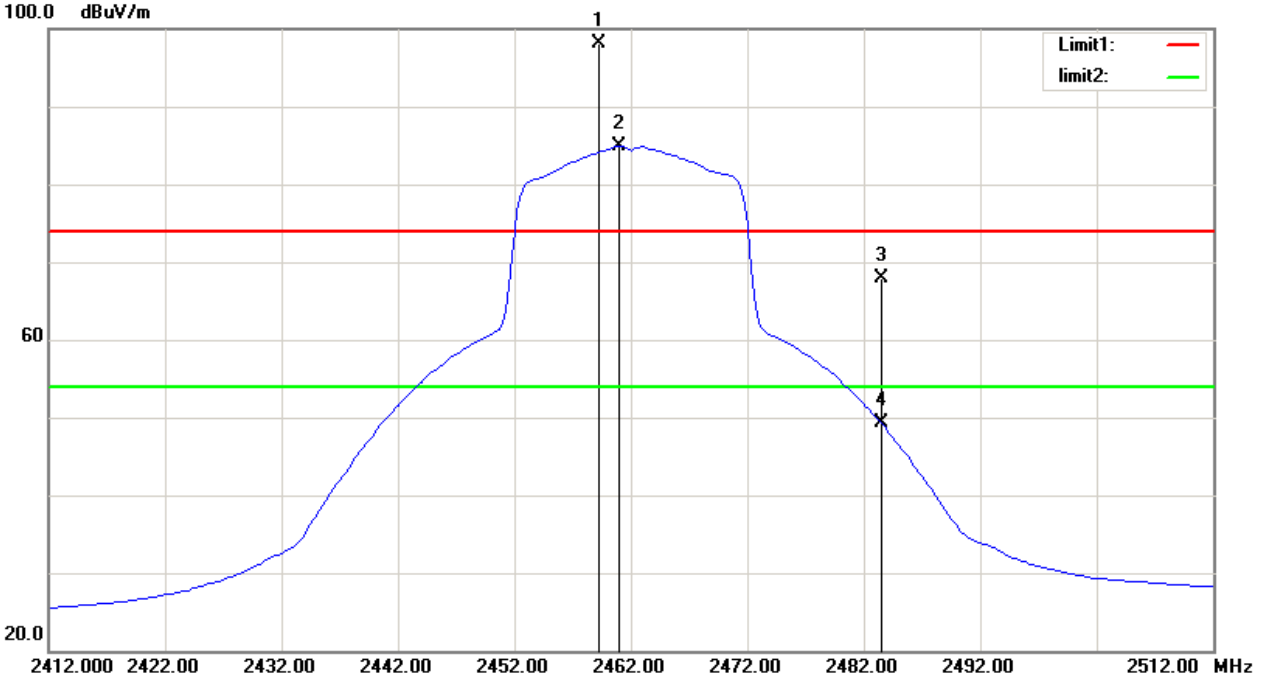


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2459.750	95.27	-11.79	83.48	74.00	9.48	peak	150	293	NO LIMIT
2	*	2461.000	82.53	-11.79	70.74	54.00	16.74	AVG	150	293	NO LIMIT
3		2483.500	51.21	-11.72	39.49	74.00	-34.51	peak	150	293	
4		2483.500	39.89	-11.72	28.17	54.00	-25.83	AVG	150	293	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2462MHz

Horizontal



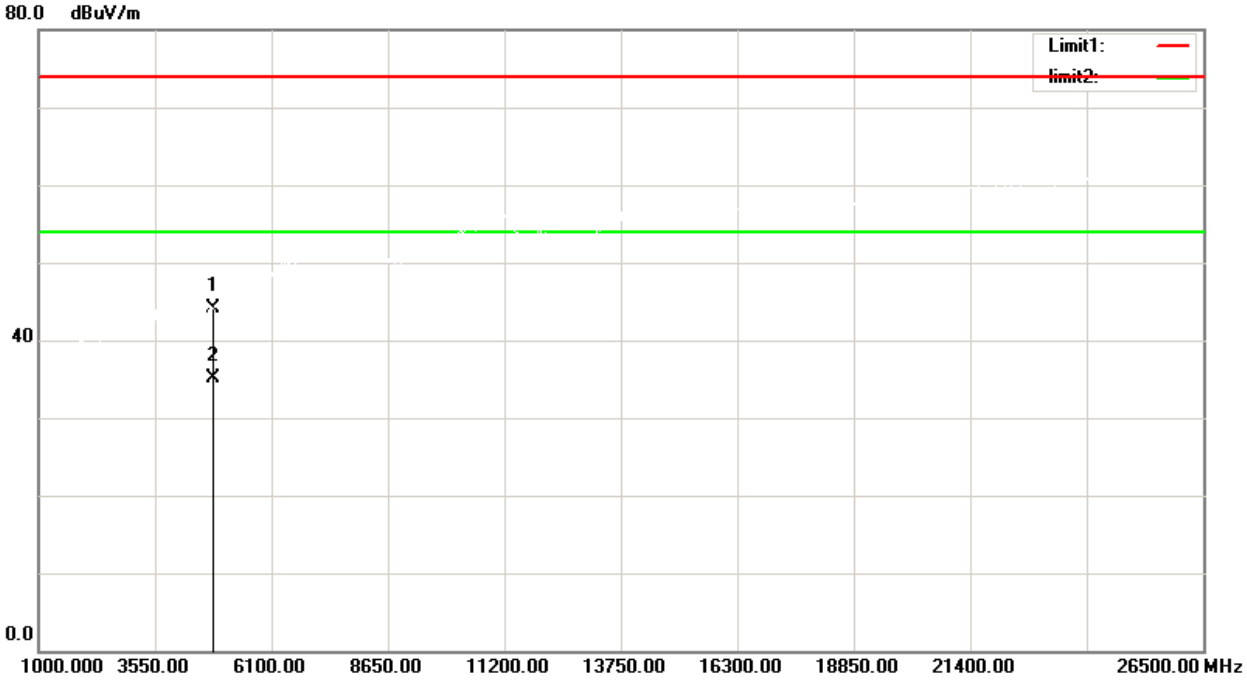
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2459.250	109.87	-11.79	98.08	74.00	24.08	peak	150	360	NO LIMIT
2	*	2461.000	96.65	-11.79	84.86	54.00	30.86	AVG	150	360	NO LIMIT
3		2483.500	79.61	-11.72	67.89	74.00	-6.11	peak	150	360	
4		2483.500	61.00	-11.72	49.28	54.00	-4.72	AVG	150	360	

*:Maximum data x:Over limit !:over margin 〈Reference Only

5.9 TEST RESULTS- ABOVE 1000MHz(HARMONIC)

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical

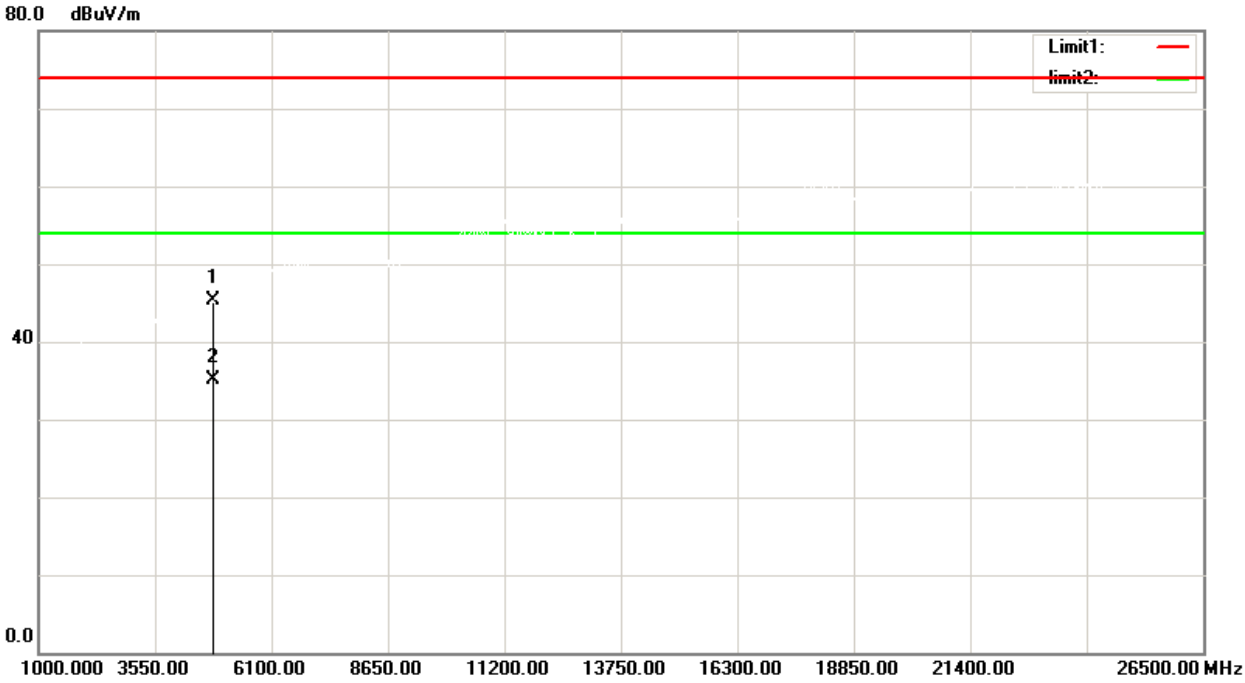


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	51.54	-7.48	44.06	74.00	-29.94	peak	150	87	
2	*	4824.000	42.64	-7.48	35.16	54.00	-18.84	AVG	150	87	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal

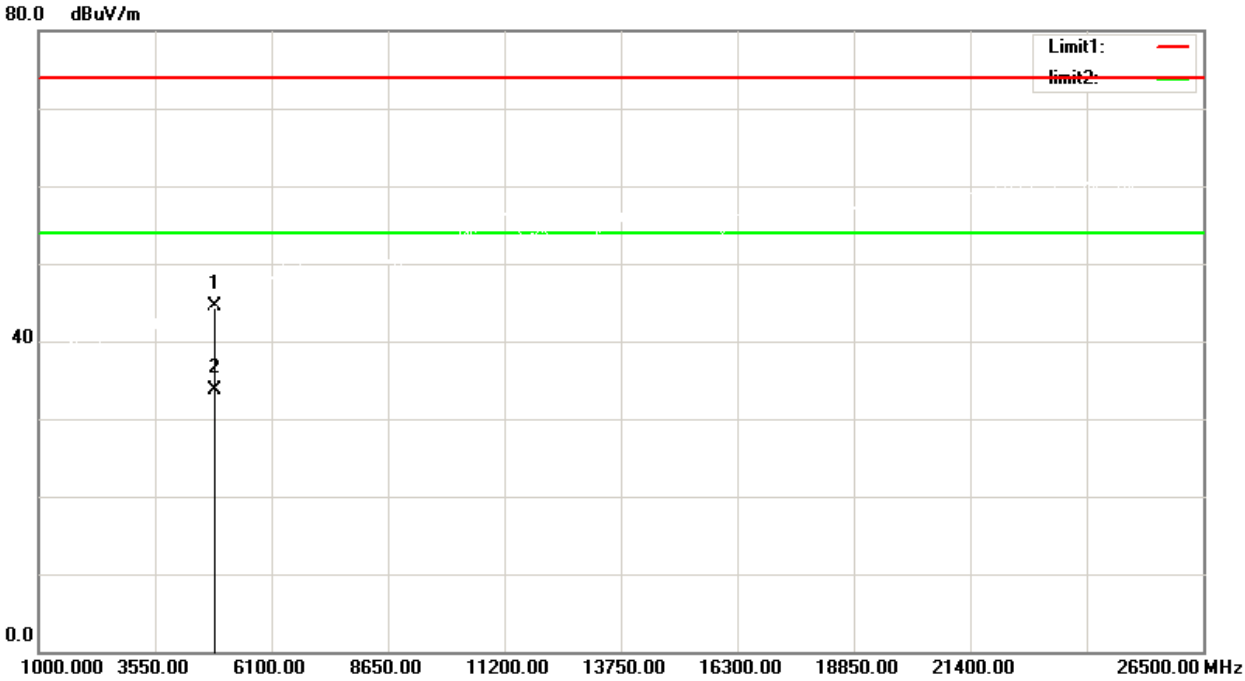


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	52.71	-7.48	45.23	74.00	-28.77	peak	150	256	
2	*	4824.000	42.60	-7.48	35.12	54.00	-18.88	AVG	150	256	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical

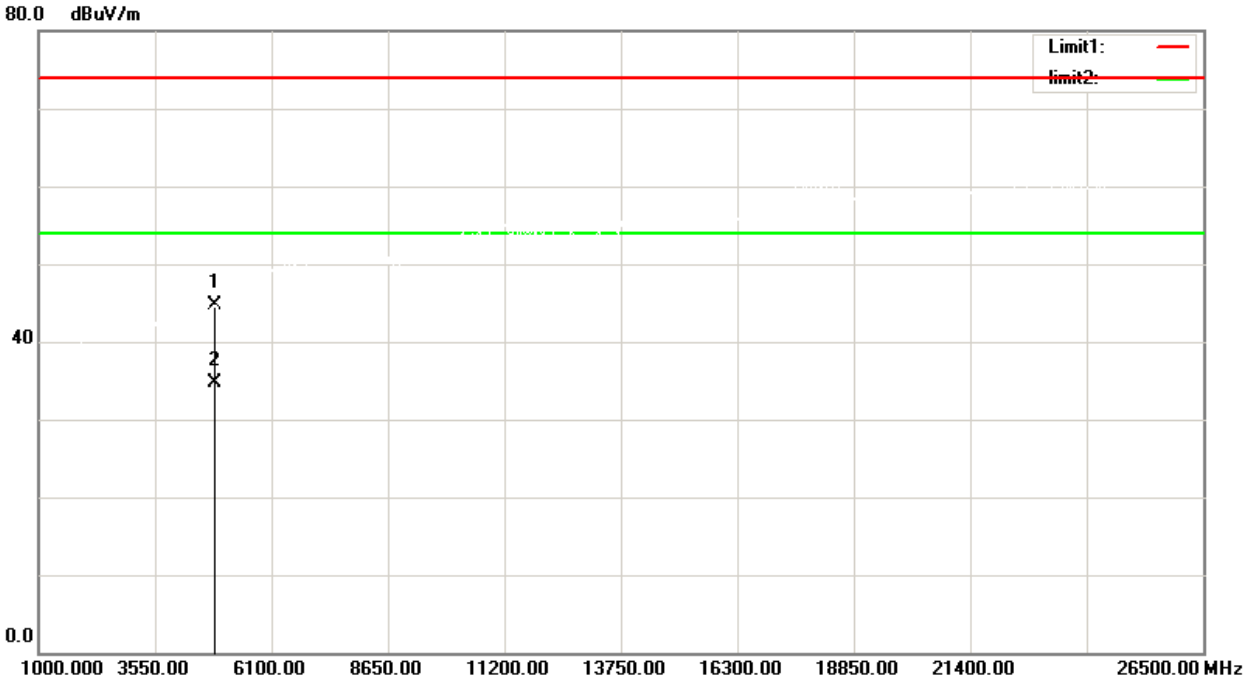


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	51.87	-7.34	44.53	74.00	-29.47	peak	150	97	
2	*	4874.000	41.01	-7.34	33.67	54.00	-20.33	AVG	150	97	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal

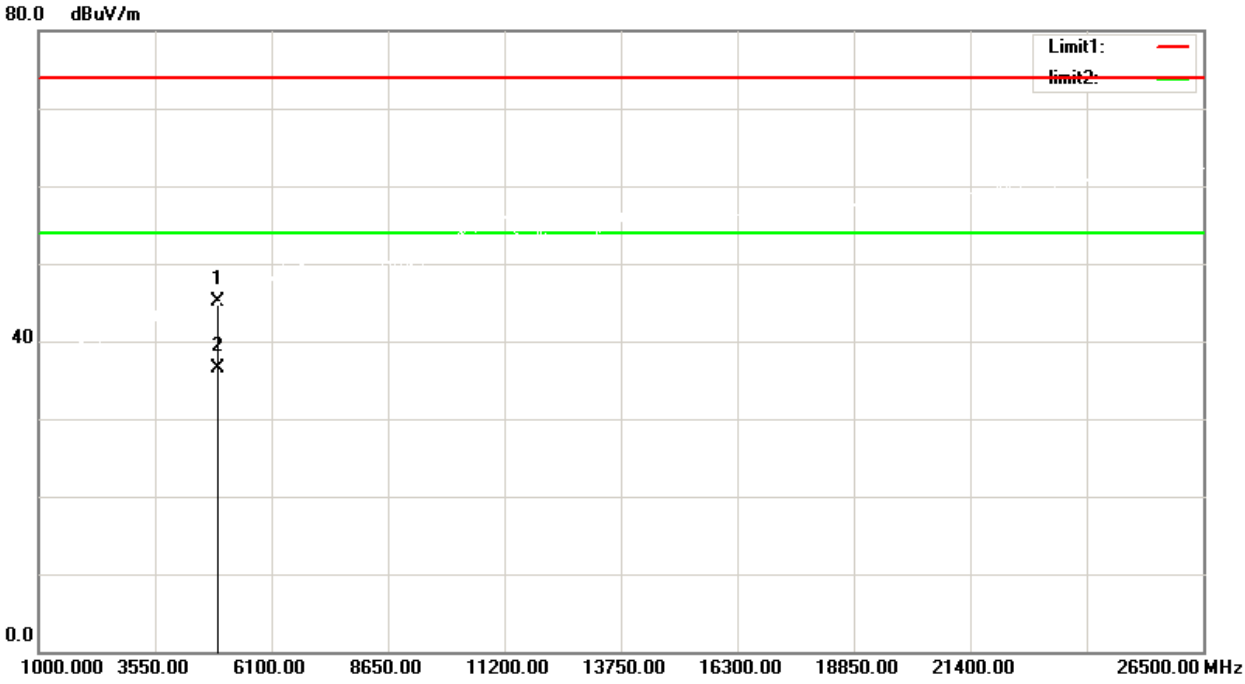


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	51.96	-7.34	44.62	74.00	-29.38	peak	150	263	
2	*	4874.000	41.99	-7.34	34.65	54.00	-19.35	AVG	150	263	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

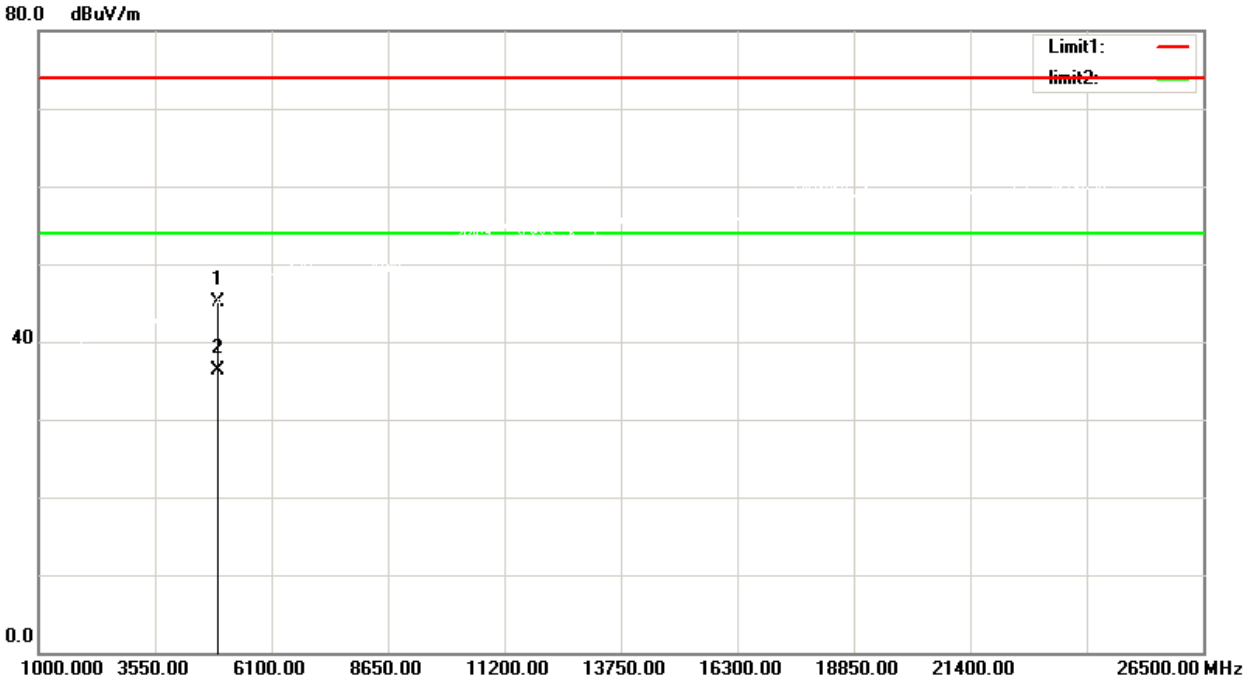


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	52.39	-7.20	45.19	74.00	-28.81	peak	150	84	
2	*	4924.000	43.62	-7.20	36.42	54.00	-17.58	AVG	150	84	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

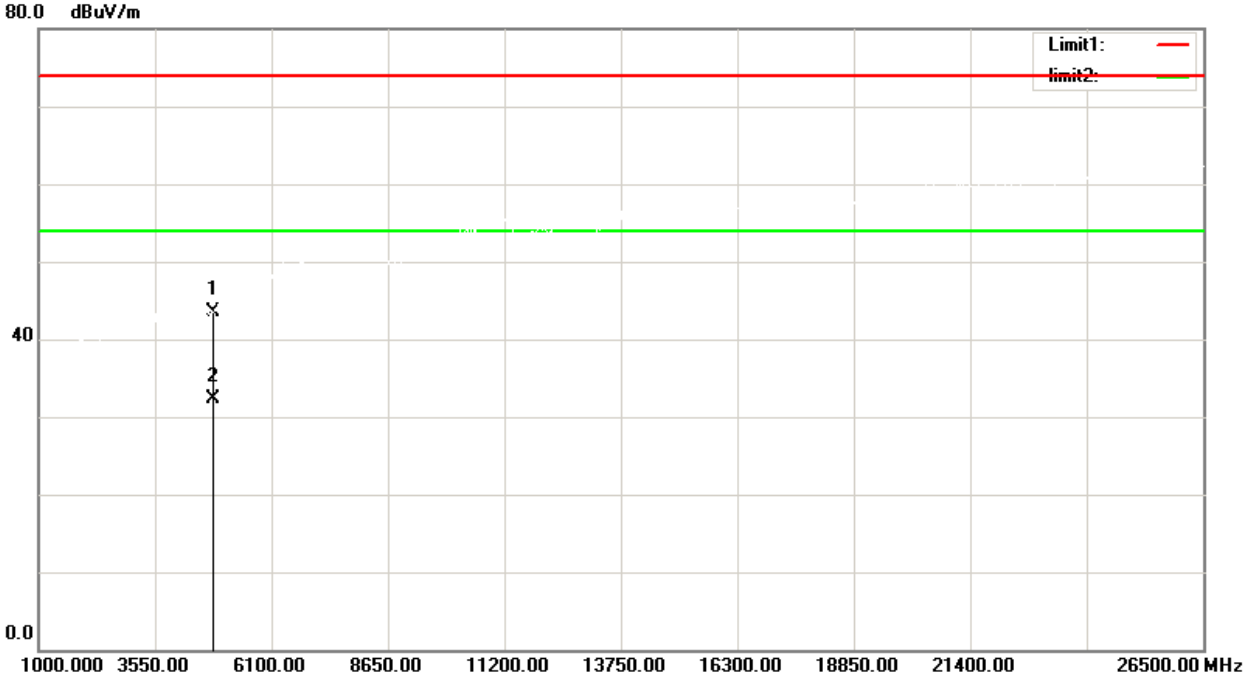


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	52.26	-7.20	45.06	74.00	-28.94	peak	150	245	
2	*	4924.000	43.41	-7.20	36.21	54.00	-17.79	AVG	150	245	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

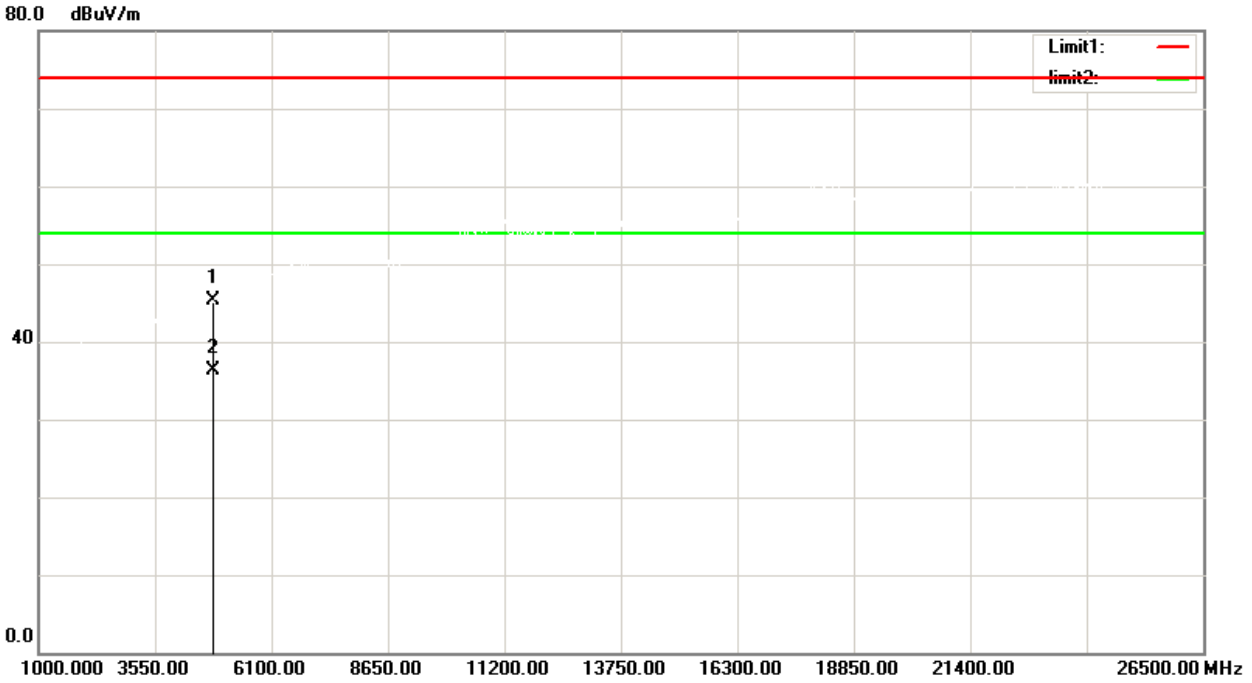


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	51.04	-7.48	43.56	74.00	-30.44	peak	150	68	
2	*	4824.000	39.74	-7.48	32.26	54.00	-21.74	AVG	150	68	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

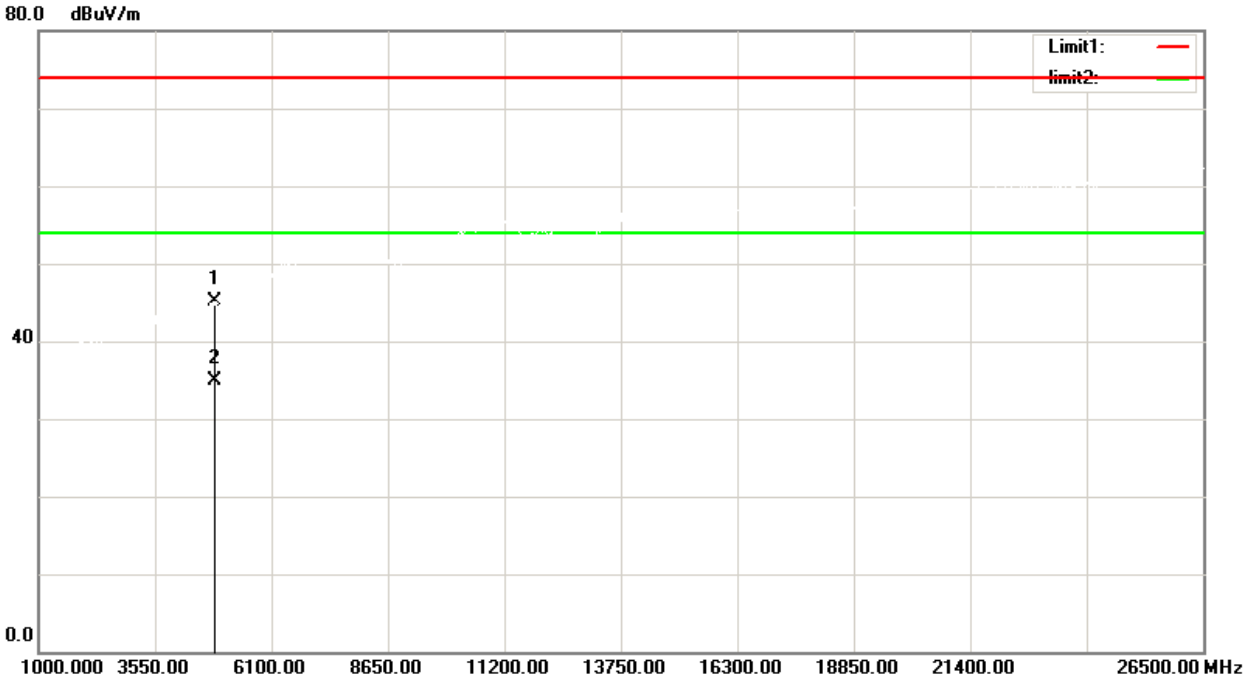


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	52.71	-7.48	45.23	74.00	-28.77	peak	150	258	
2	*	4824.000	43.77	-7.48	36.29	54.00	-17.71	AVG	150	258	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical

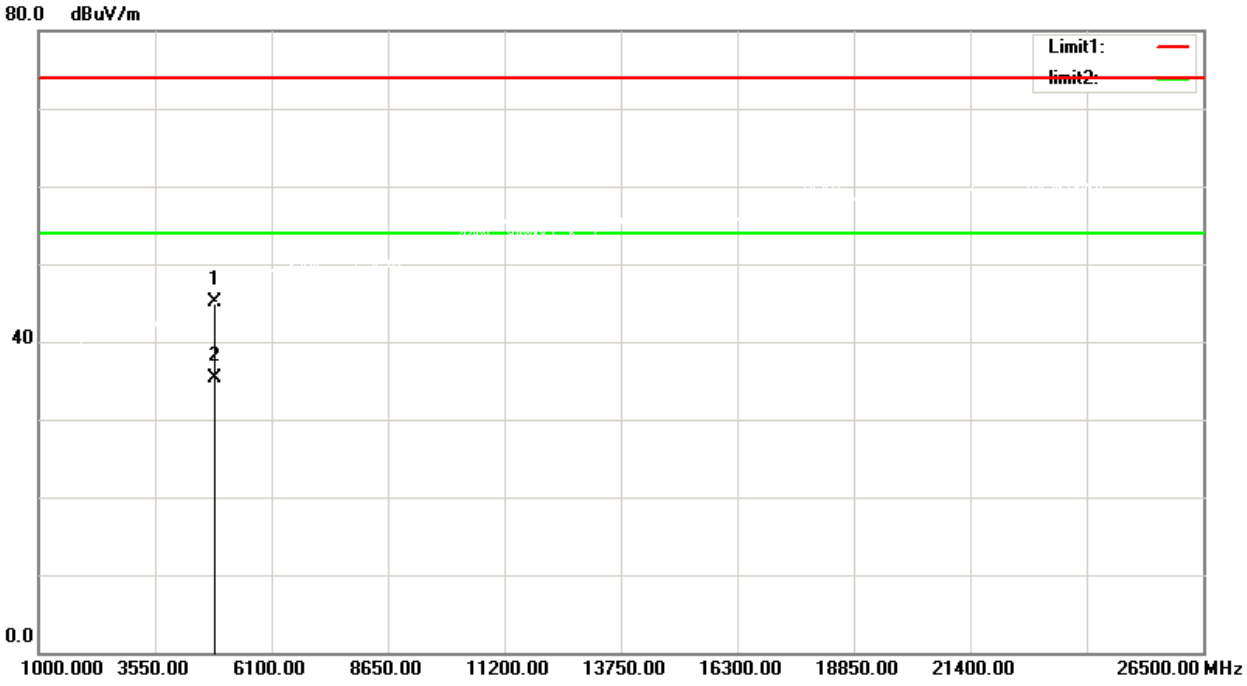


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	52.37	-7.34	45.03	74.00	-28.97	peak	150	78	
2	*	4874.000	42.32	-7.34	34.98	54.00	-19.02	AVG	150	78	

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal

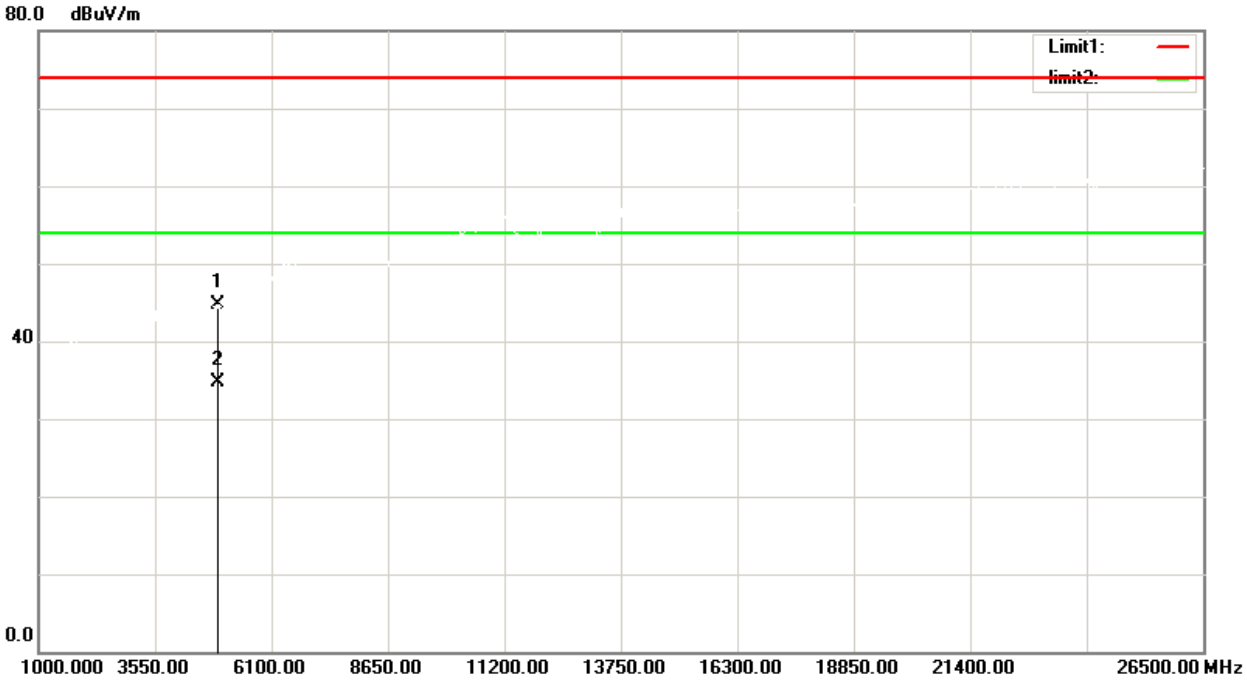


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	52.46	-7.34	45.12	74.00	-28.88	peak	150	296	
2	*	4874.000	42.63	-7.34	35.29	54.00	-18.71	AVG	150	296	

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

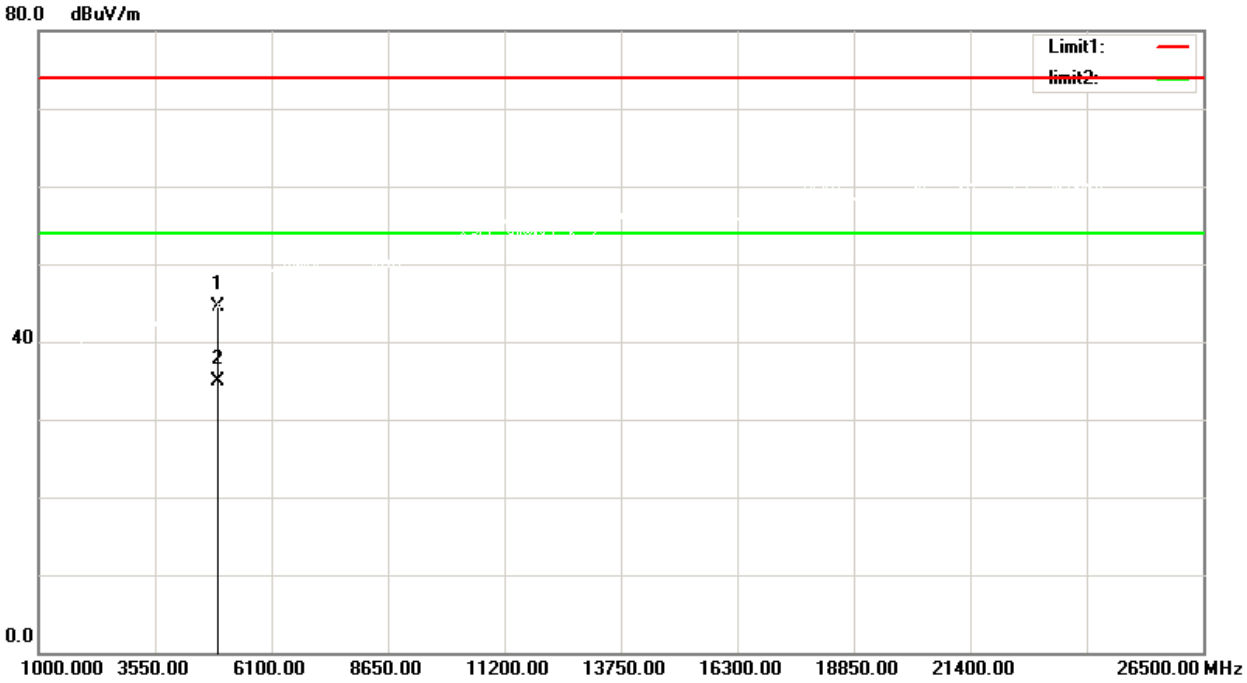


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	51.89	-7.20	44.69	74.00	-29.31	peak	150	59	
2	*	4924.000	41.99	-7.20	34.79	54.00	-19.21	AVG	150	59	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

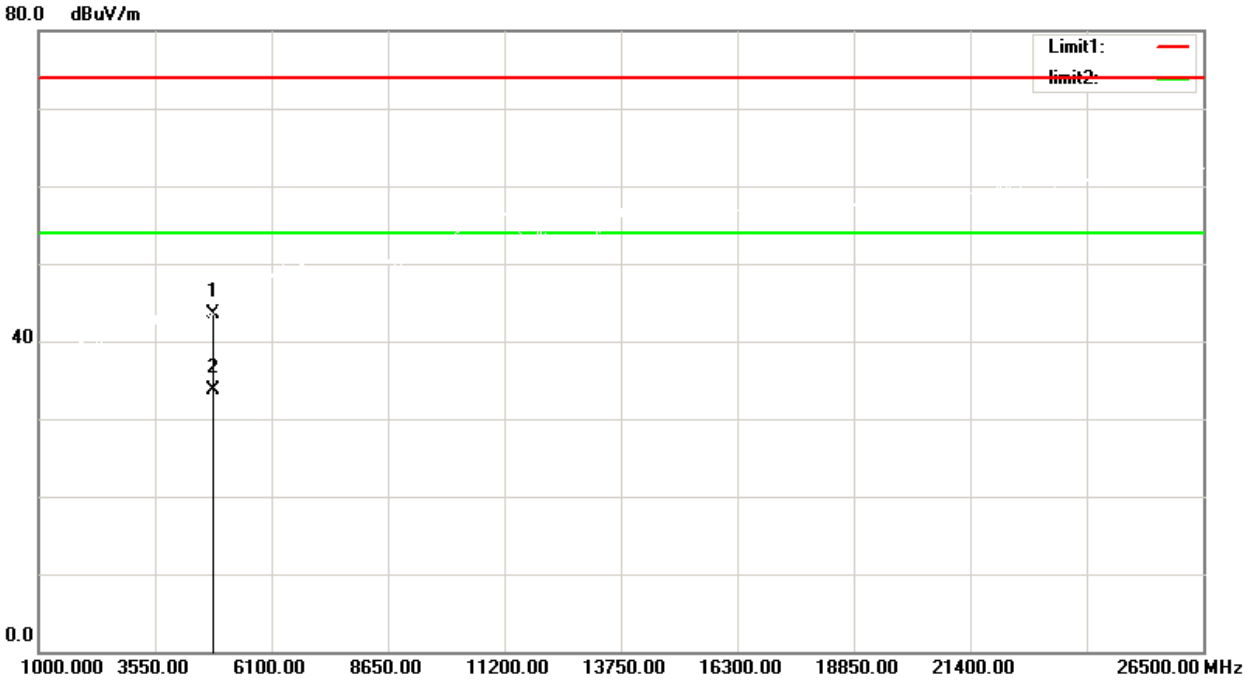


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	51.76	-7.20	44.56	74.00	-29.44	peak	150	274	
2	*	4924.000	42.18	-7.20	34.98	54.00	-19.02	AVG	150	274	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Vertical

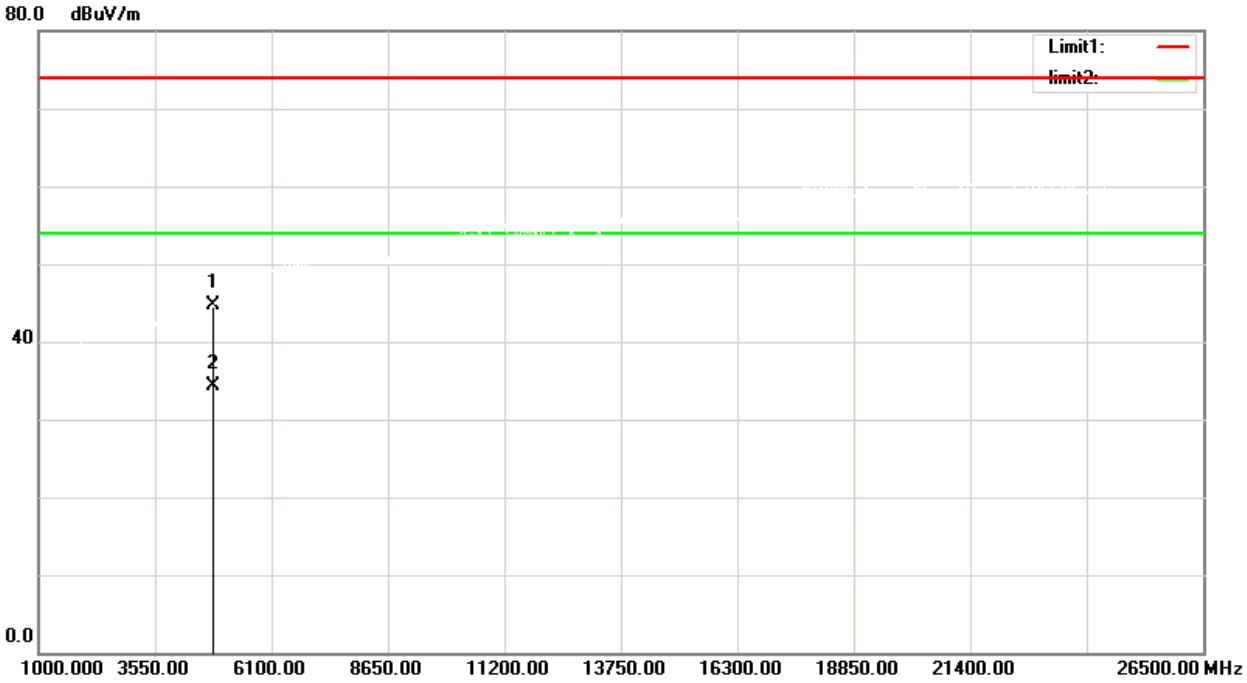


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	51.04	-7.48	43.56	74.00	-30.44	peak	150	96	
2	*	4824.000	41.13	-7.48	33.65	54.00	-20.35	AVG	150	96	

*:Maximum data x:Over limit l:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Horizontal

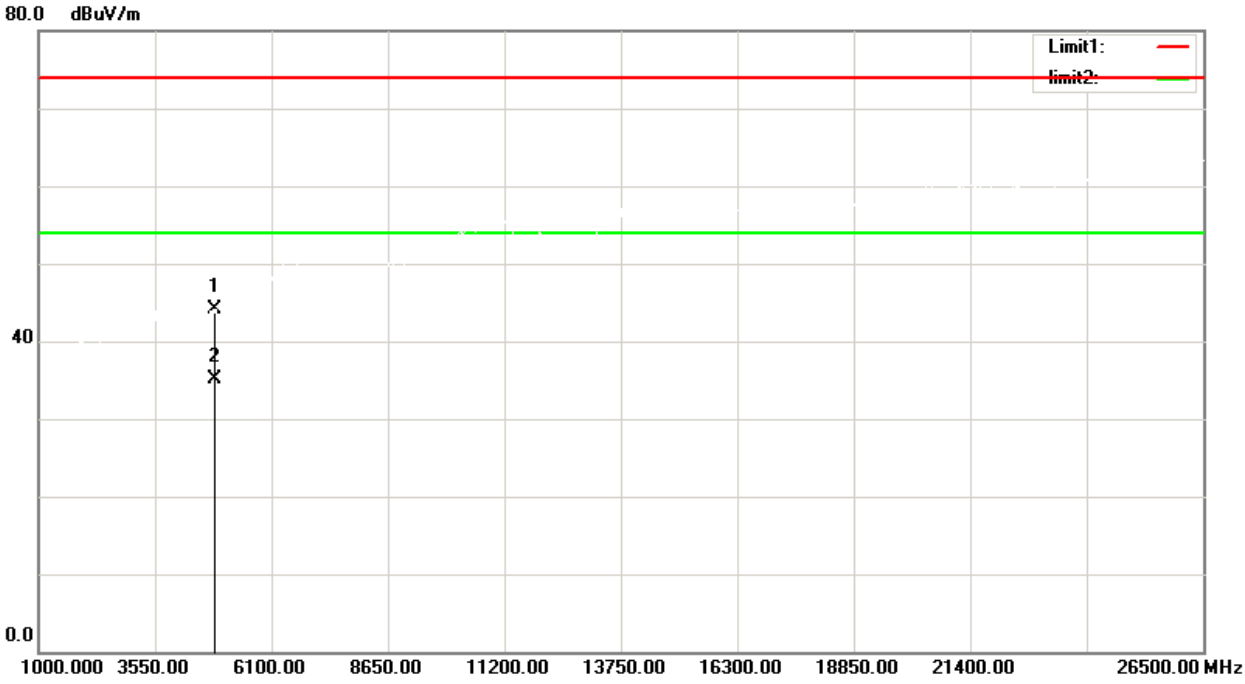


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	52.21	-7.48	44.73	74.00	-29.27	peak	150	248	
2	*	4824.000	41.74	-7.48	34.26	54.00	-19.74	AVG	150	248	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2437 MHz

Vertical

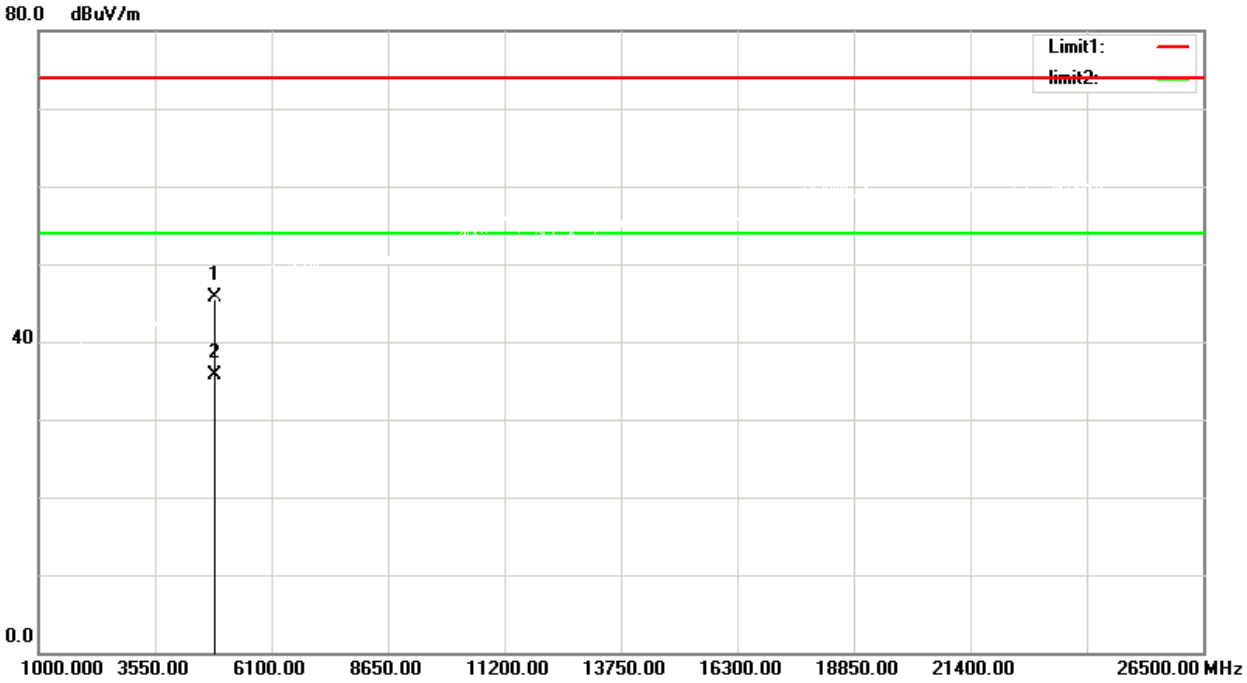


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	51.37	-7.34	44.03	74.00	-29.97	peak	150	96	
2	*	4874.000	42.46	-7.34	35.12	54.00	-18.88	AVG	150	96	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2437 MHz

Horizontal

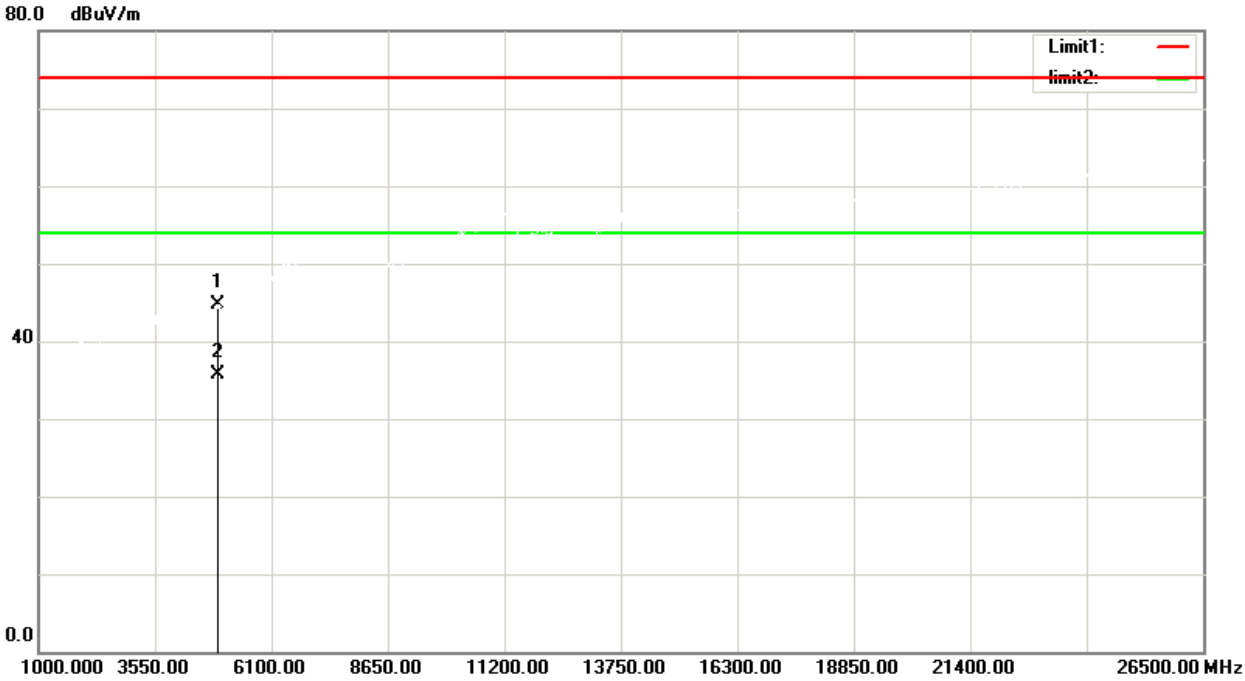


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	52.96	-7.34	45.62	74.00	-28.38	peak	150	278	
2	*	4874.000	43.02	-7.34	35.68	54.00	-18.32	AVG	150	278	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Vertical

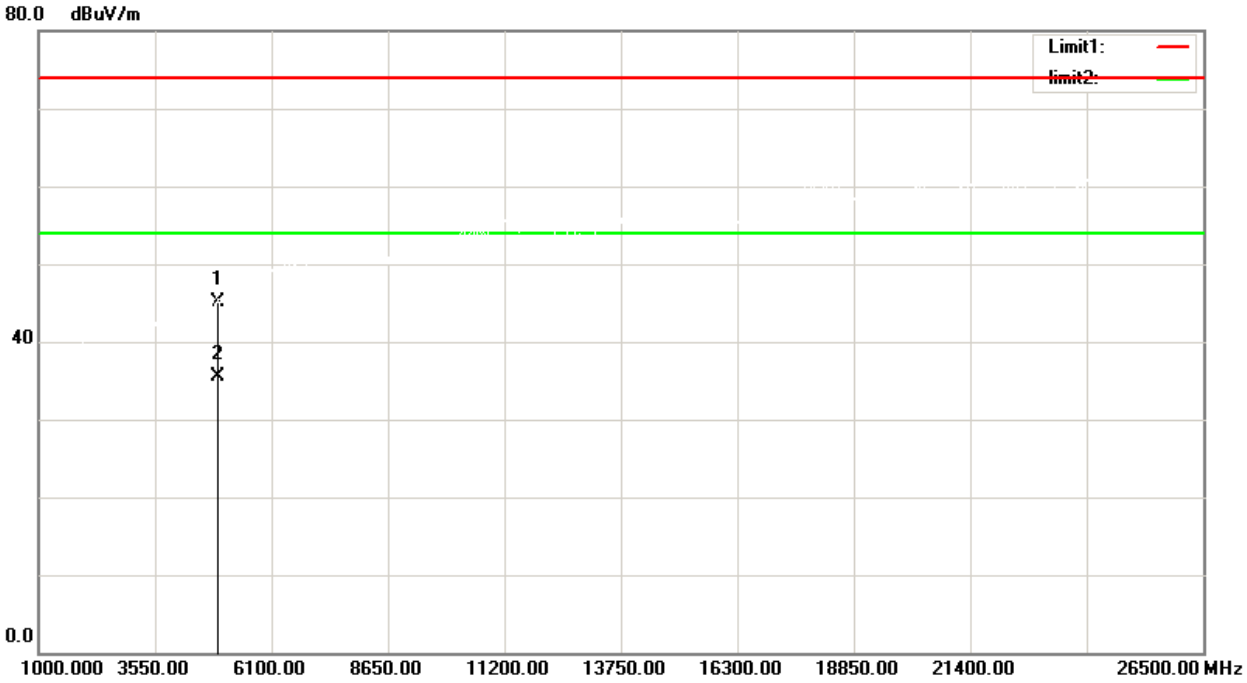


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	51.89	-7.20	44.69	74.00	-29.31	peak	150	87	
2	*	4924.000	42.95	-7.20	35.75	54.00	-18.25	AVG	150	87	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Horizontal

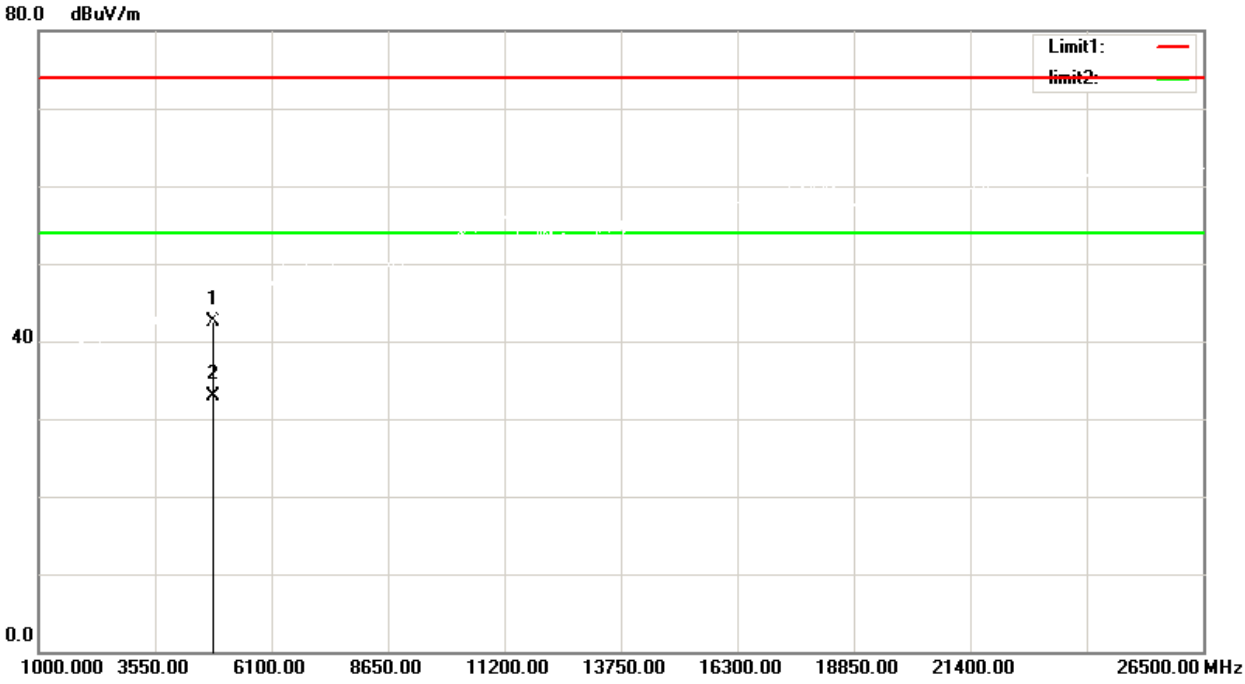


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	52.26	-7.20	45.06	74.00	-28.94	peak	150	263	
2	*	4924.000	42.69	-7.20	35.49	54.00	-18.51	AVG	150	263	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2412MHz

Vertical

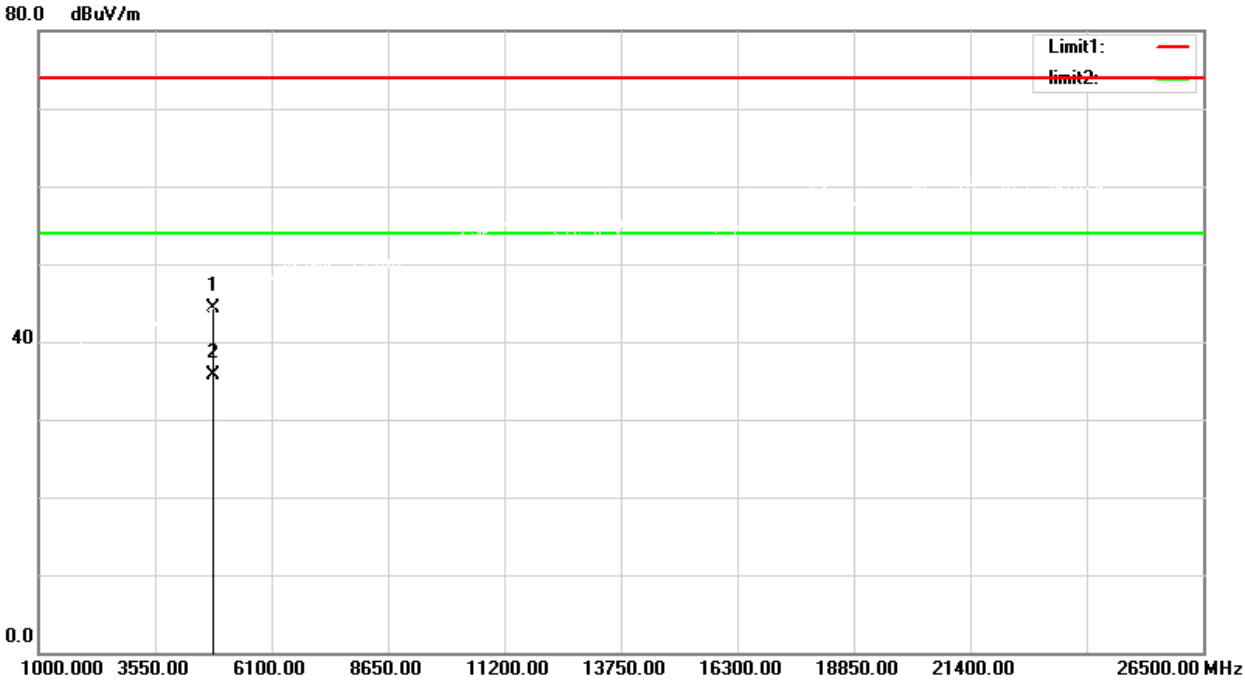


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	50.04	-7.48	42.56	74.00	-31.44	peak	150	94	
2	*	4824.000	40.34	-7.48	32.86	54.00	-21.14	AVG	150	94	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2412MHz

Horizontal

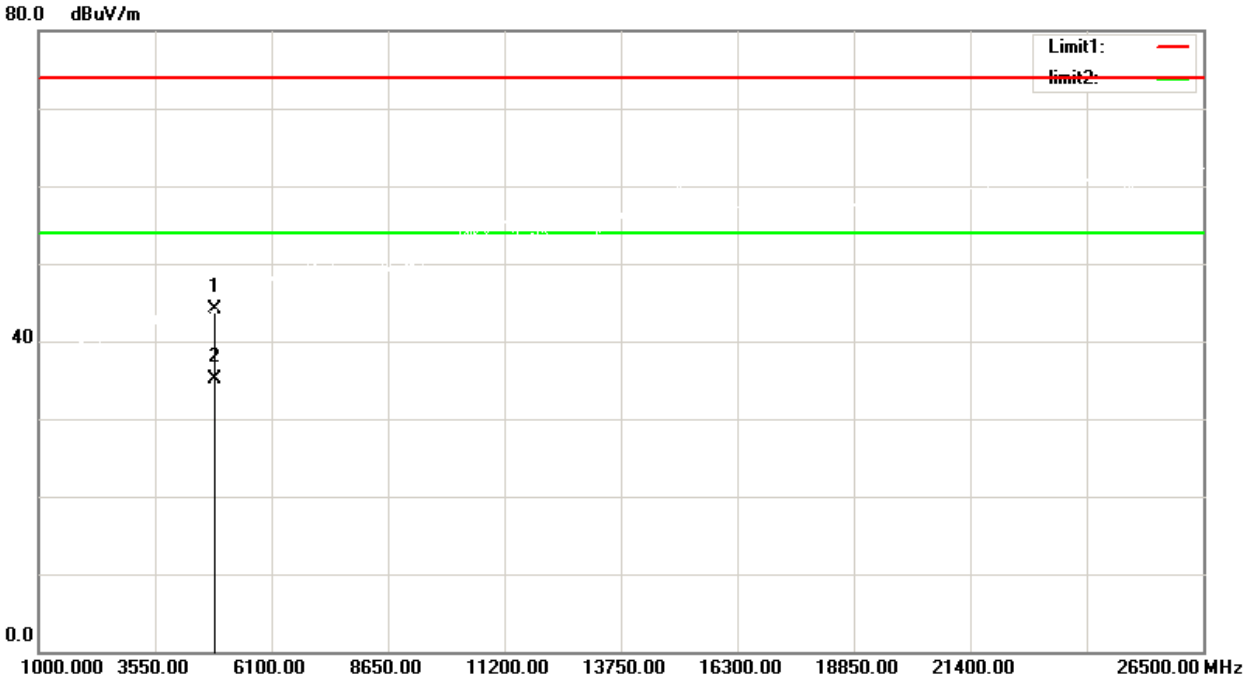


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4824.000	51.71	-7.48	44.23	74.00	-29.77	peak	150	264	
2	*	4824.000	43.12	-7.48	35.64	54.00	-18.36	AVG	150	264	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2437MHz

Vertical

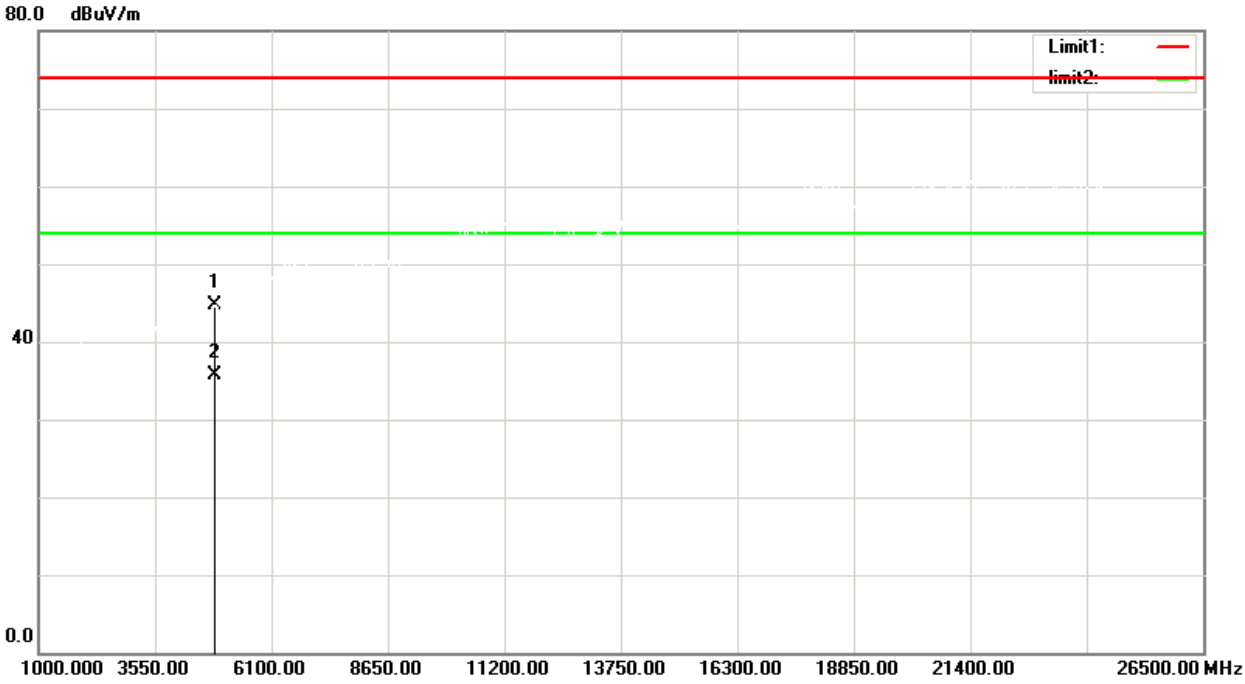


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	51.37	-7.34	44.03	74.00	-29.97	peak	150	68	
2	*	4874.000	42.50	-7.34	35.16	54.00	-18.84	AVG	150	68	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2437MHz

Horizontal

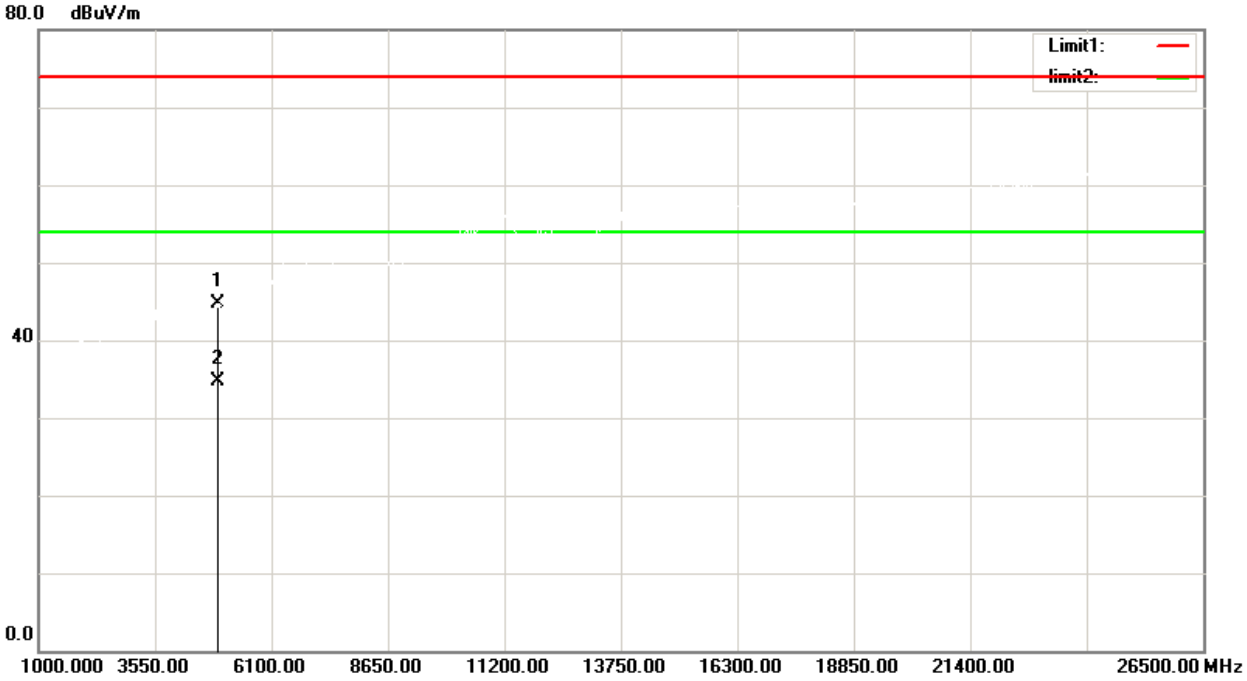


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4874.000	51.96	-7.34	44.62	74.00	-29.38	peak	150	273	
2	*	4874.000	43.01	-7.34	35.67	54.00	-18.33	AVG	150	273	

*:Maximum data x:Over limit !:over margin (Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2462MHz

Vertical

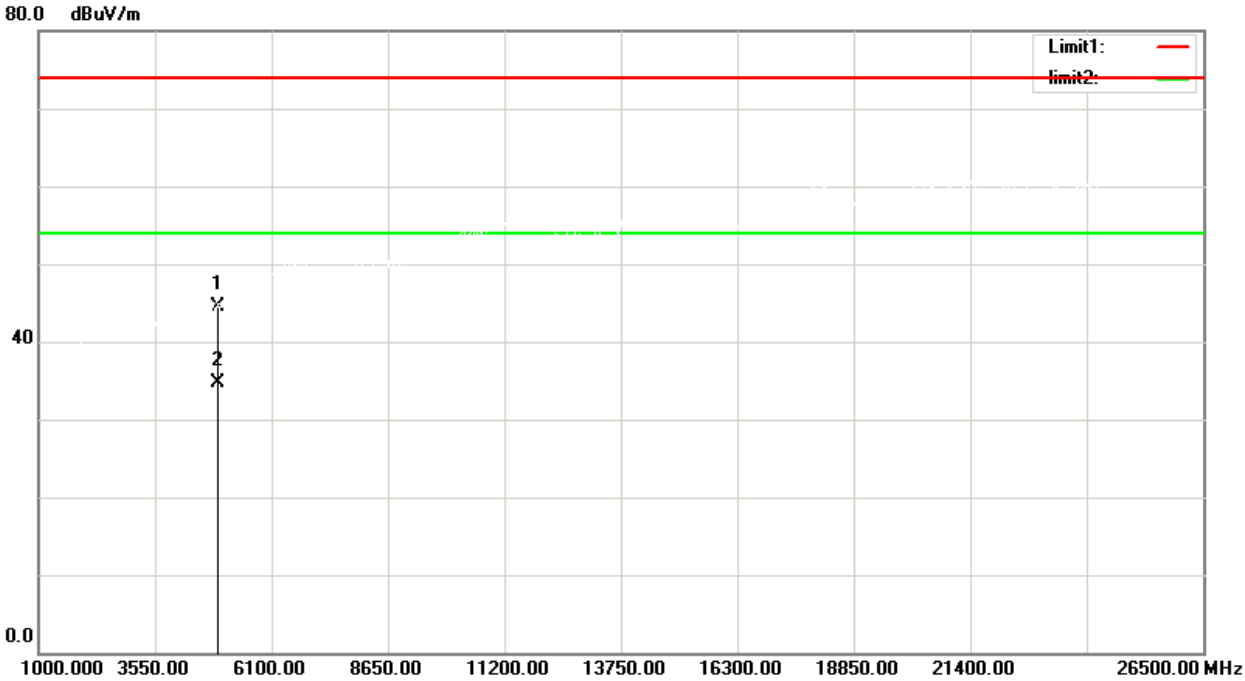


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	51.89	-7.20	44.69	74.00	-29.31	peak	150	68	
2	*	4924.000	41.82	-7.20	34.62	54.00	-19.38	AVG	150	68	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Orthogonal Axis	X
Test Mode:	TX AX-20M Mode 2462MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		4924.000	51.76	-7.20	44.56	74.00	-29.44	peak	150	268	
2	*	4924.000	41.88	-7.20	34.68	54.00	-19.32	AVG	150	268	

*:Maximum data x:Over limit !:over margin 〈Reference Only

6 BANDWIDTH TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247)&RSS-Gen and RSS-247		
Section	Test Item	Limit
15.247(a)(2) RSS-Gen6.7 RSS-247 5.2 (a)	6dB Bandwidth	Minimum 500 kHz
	99% Emission Bandwidth	-

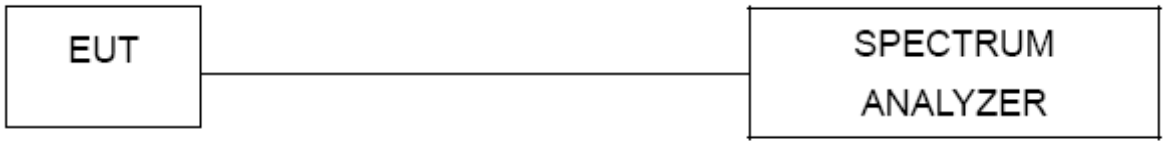
6.2 TEST PROCEDURE AND SETTING

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. For 6dB Bandwidth Spectrum setting:RBW= 100KHz, VBW=300KHz, Sweep time = 2.5ms.
For 99% OBW Spectrum Setting: RBW= 300KHz, VBW=1MHz,Sweep time = 2.5ms.
c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

6.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2023/05/26
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

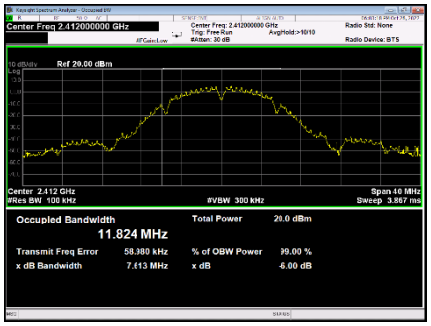
The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TESTRESULTS

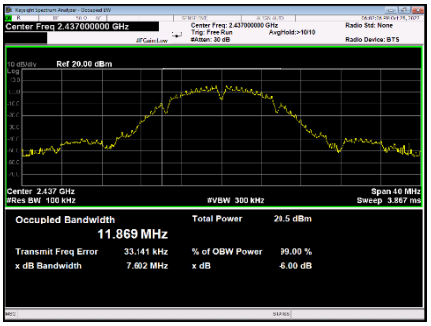
TX B Mode					
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Emission Bandwidth(MHz)	6dB Bandwidth Min. Limit(kHz)	Result
01	2412	7.613	11.859	500	PASS
06	2437	7.602	11.899	500	PASS
11	2462	8.060	11.905	500	PASS

6dB

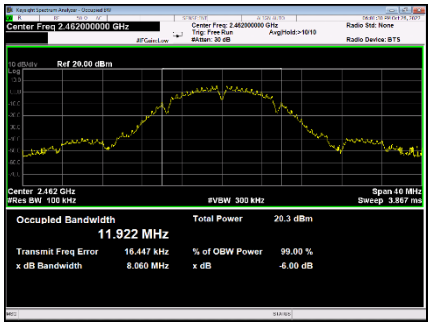
CH01



CH06

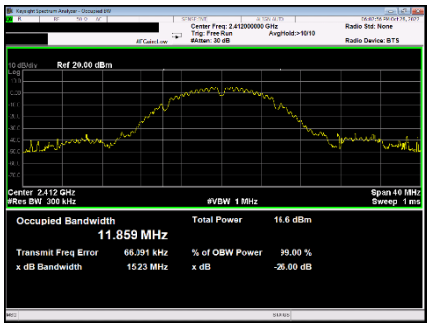


CH11



99%

CH01



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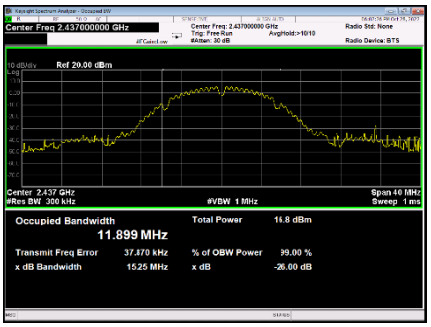

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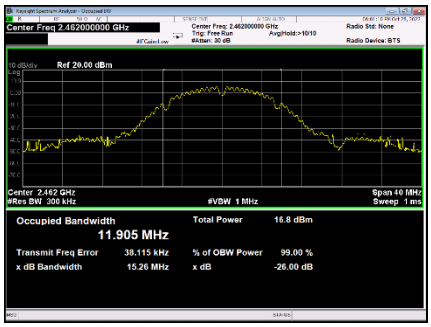
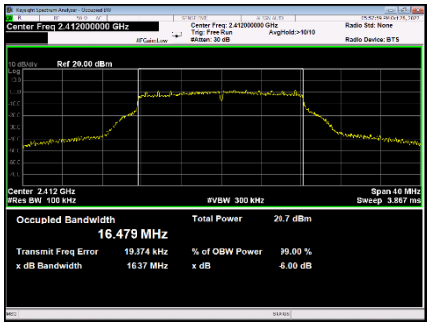


TX G Mode					
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Emission Bandwidth(MHz)	6dB Bandwidth Min. Limit(kHz)	Result
01	2412	16.37	16.941	500	PASS
06	2437	16.37	16.946	500	PASS
11	2462	16.38	16.954	500	PASS

6dB

CH01



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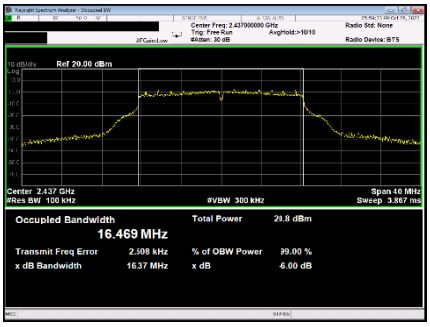

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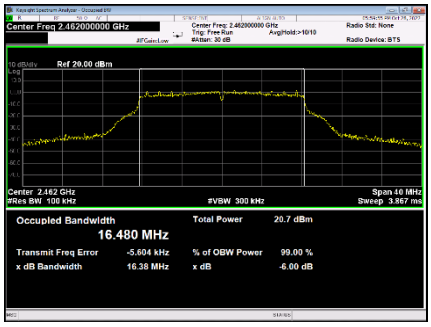
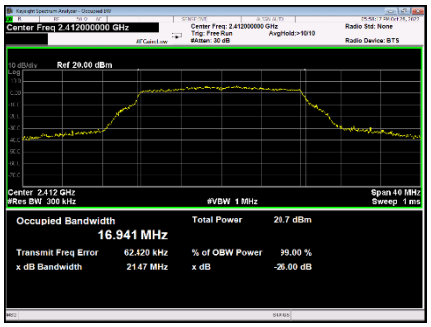


99%

CH01



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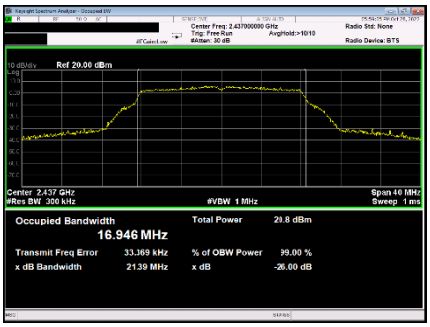

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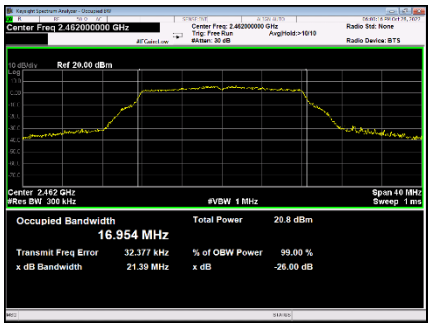
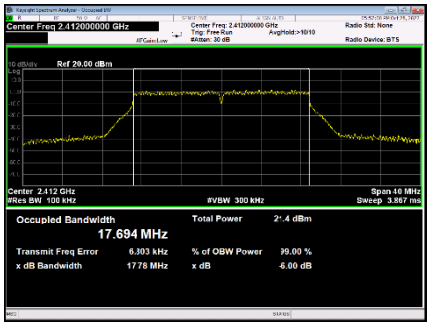


TX N (HT20) Mode					
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Emission Bandwidth(MHz)	6dB Bandwidth Min. Limit(kHz)	Result
01	2412	17.78	21.70	500	PASS
06	2437	17.79	21.58	500	PASS
11	2462	17.79	21.53	500	PASS

6dB

CH01



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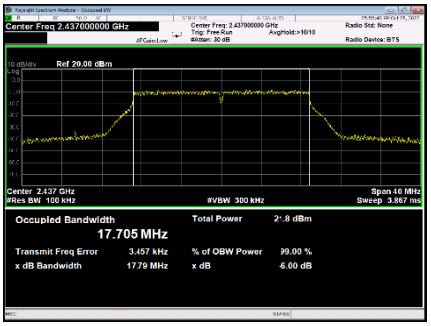

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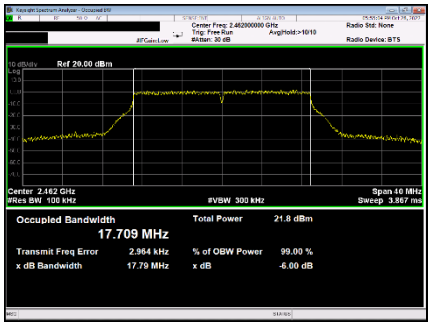
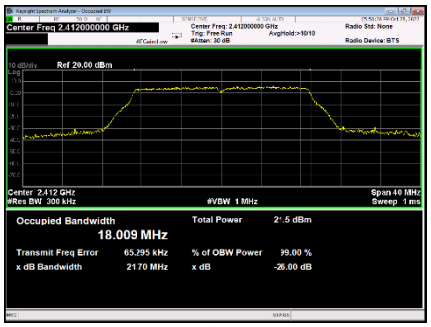


99%

CH01



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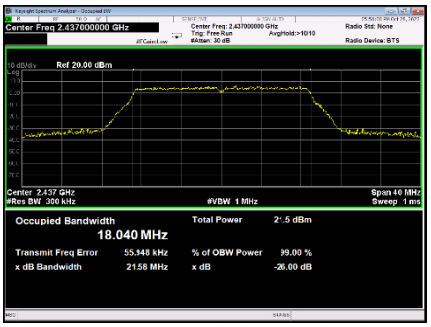

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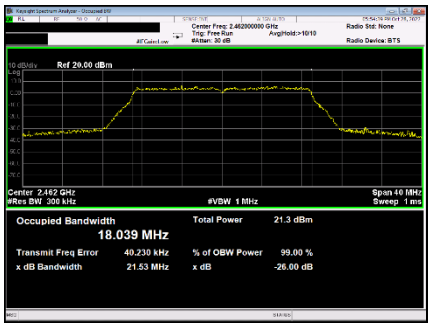
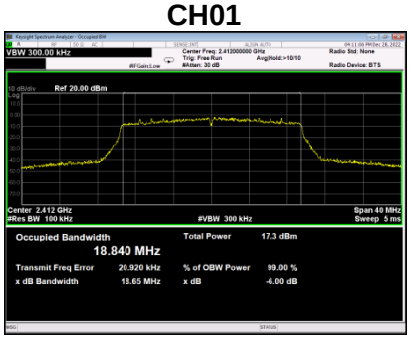


TX AX (HE20) Mode					
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Emission Bandwidth(MHz)	6dB Bandwidth Min. Limit(kHz)	Result
01	2412	18.65	18.940	500	PASS
06	2437	18.75	18.979	500	PASS
11	2462	18.68	18.953	500	PASS

6dB

CH01



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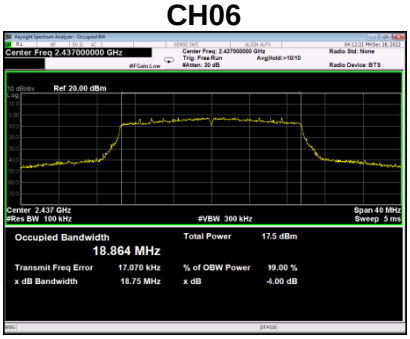

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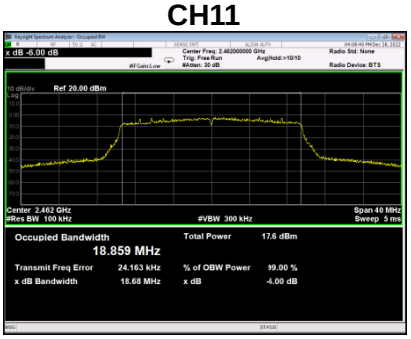
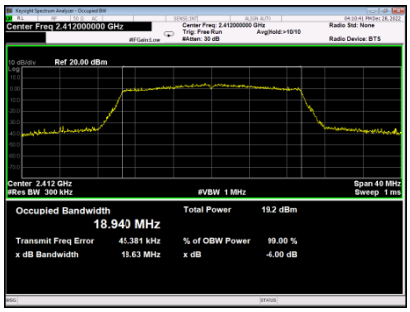
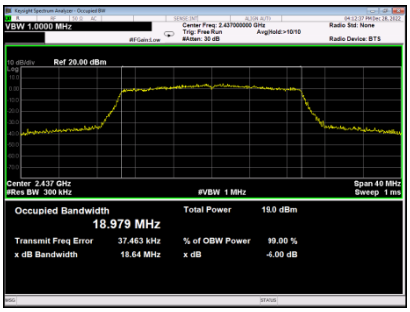


99%

CH01



CH06



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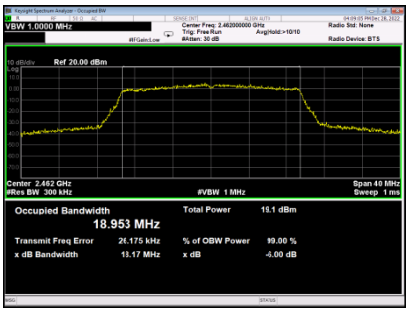


7 MAXIMUM OUTPUT POWER TEST

7.1 LIMIT

FCC Part15, Subpart C (15.247)&RSS-247		
Section	Test Item	Limit
15.247(b)(3) RSS-2475.4 (d)	Maximum Output Power	1 Watt or 30dBm

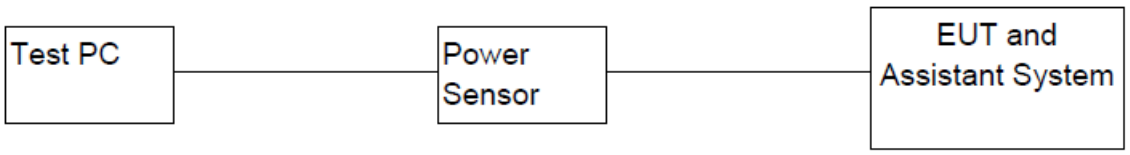
7.2 TEST PROCEDURE AND SETTING

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
b. The maximum conducted output power was performed in accordance with method 11.9.1.3 of ANSI C63.10-2013.and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

7.3 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Power Sensor	KEYSIGHT	U2021XA	MY55240009	05/26/2026
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Micable	C10-01-01-1	100309	N/A
4	Test Software	KEYSIGHT	Power Panel	V3.11	N/A

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TESTRESULTS

TX B Mode_Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	15.09	0.0323	PASS
06	2437	15.45	0.0351	PASS
11	2462	15.19	0.0330	PASS
Limit	30dBm / 1W			

TX B Mode_Ant 2				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	15.46	0.0352	PASS
06	2437	15.74	0.0375	PASS
11	2462	15.52	0.0356	PASS
Limit	30dBm / 1W			

TX G Mode_Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	20.85	0.1216	PASS
06	2437	21.34	0.1361	PASS
11	2462	20.94	0.1242	PASS
Limit	30dBm / 1W			

TX G Mode_Ant 2				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	21.09	0.1285	PASS
06	2437	21.28	0.1343	PASS
11	2462	20.71	0.1178	PASS
Limit	30dBm / 1W			

TX N (HT20) _Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	21.31	0.1352	PASS
06	2437	21.69	0.1476	PASS
11	2462	21.51	0.1416	PASS
Limit	30dBm / 1W			

TX N (HT20) _Ant 2				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	20.99	0.1256	PASS
06	2437	20.87	0.1222	PASS
11	2462	20.24	0.1057	PASS
Limit	30dBm / 1W			

TX N (HT20) _Total				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	24.16	0.2608	PASS
06	2437	24.31	0.2698	PASS
11	2462	23.93	0.2473	PASS
Limit	30dBm / 1W			

TX AX (HE20) _Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	20.16	0.1038	PASS
06	2437	20.56	0.1138	PASS
11	2462	20.64	0.1159	PASS
Limit	30dBm / 1W			

TX AX (HE20) _Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	20.00	0.1000	PASS
06	2437	20.12	0.1028	PASS
11	2462	20.17	0.1040	PASS
Limit	30dBm / 1W			

TX AX (HE20) _Ant 1				
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
01	2412	23.09	0.2038	PASS
06	2437	23.36	0.2168	PASS
11	2462	23.42	0.2198	PASS
Limit	30dBm / 1W			

8 CONDUCTED SPURIOUS EMISSIONS

8.1 LIMIT

For FCC

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.

For ISED

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

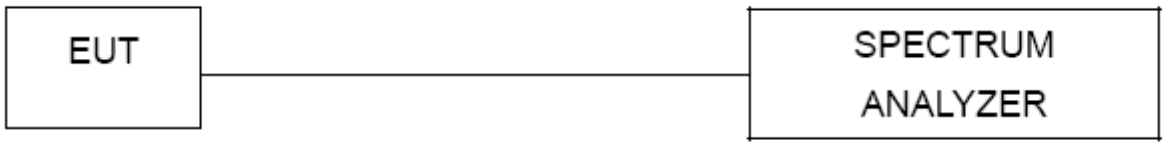
8.2 TEST PROCEDURE AND SETTING

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

8.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2023/05/26
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

8.4 TEST SETUP



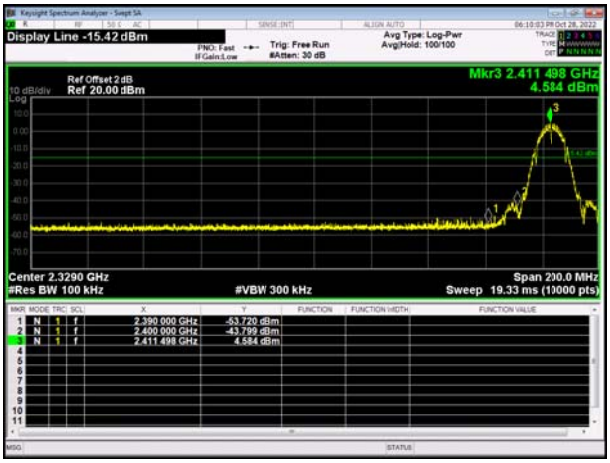
8.5EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5unless otherwise a special operating condition is specified in the follows during the testing.

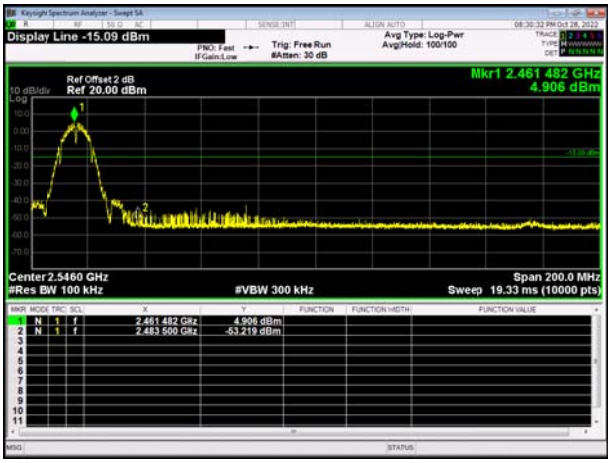
8.6 TESTRESULTS

TX B Mode_Ant 1

Bandedge-CH01

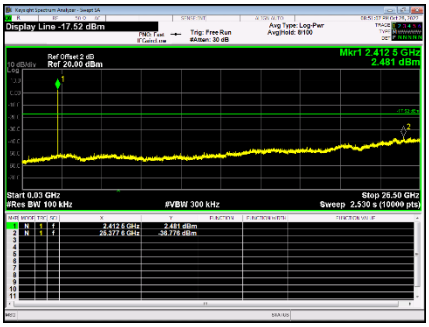


Bandedge-CH11

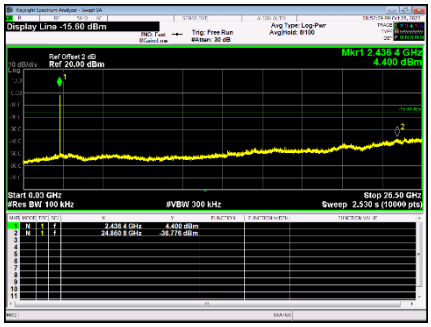


10th Harmonic of the fundamental frequency

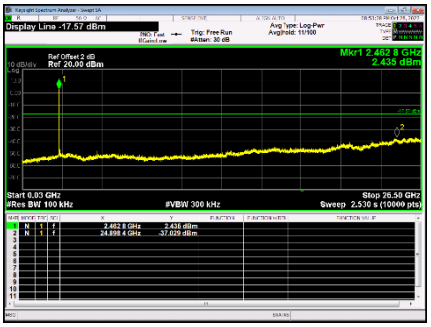
CH01



CH06

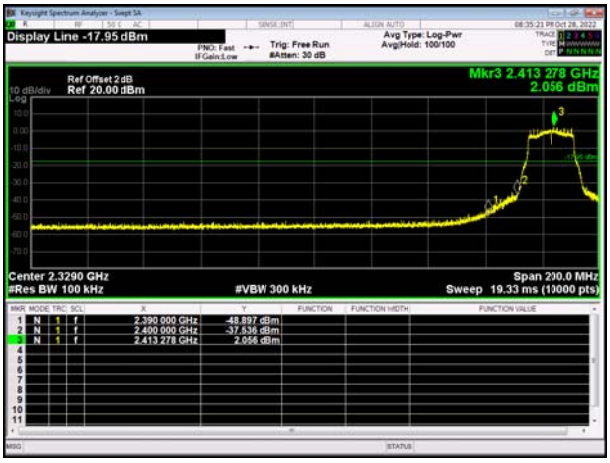


CH11

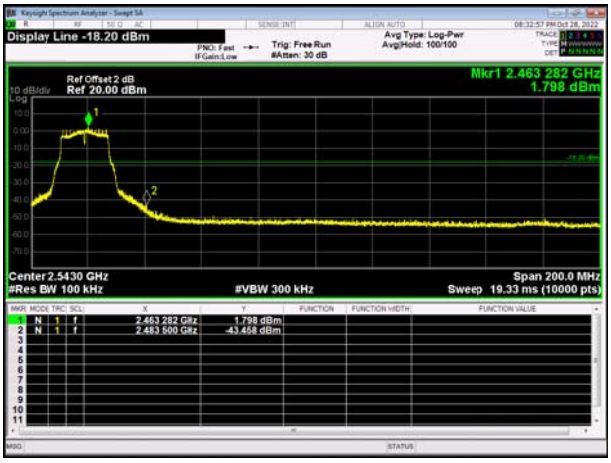


TX G Mode_Ant 1

Bandedge-CH01

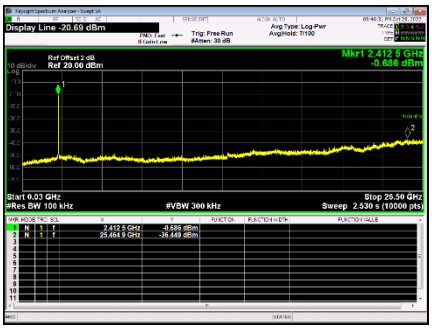


Bandedge-CH11

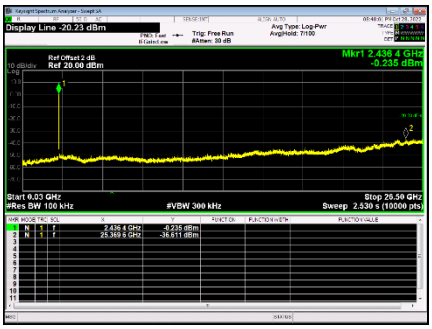


10th Harmonic of the fundamental frequency

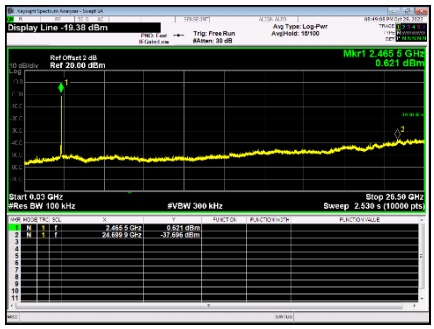
CH01



CH06

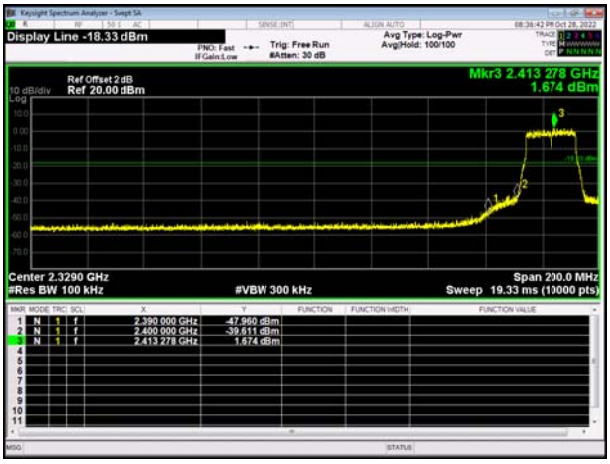


CH11

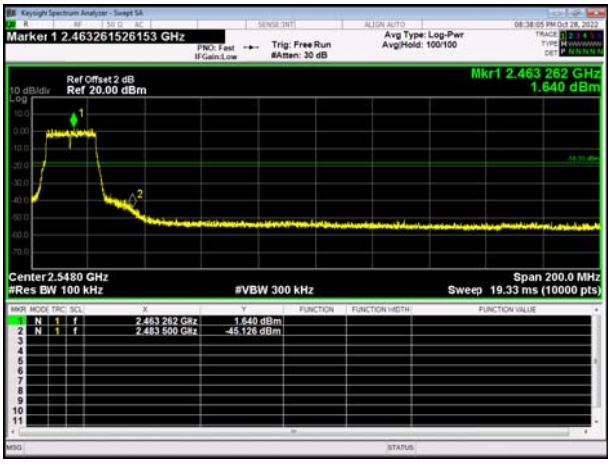


TX N (HT20) Mode _Ant 1

Bandedge-CH01

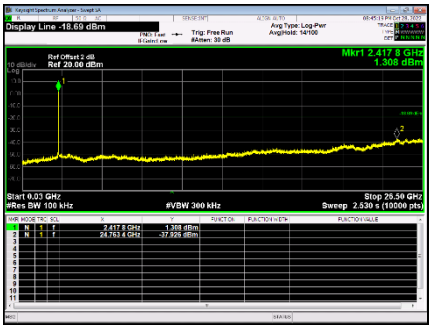


Bandedge-CH11

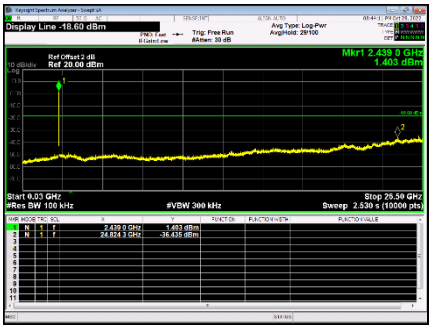


10th Harmonic of the fundamental frequency

CH01



CH06



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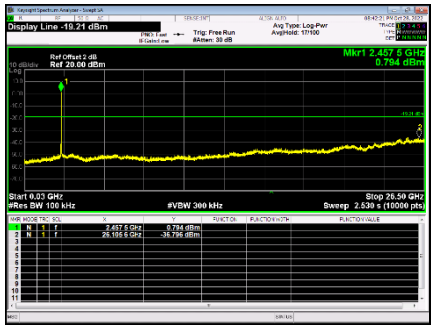
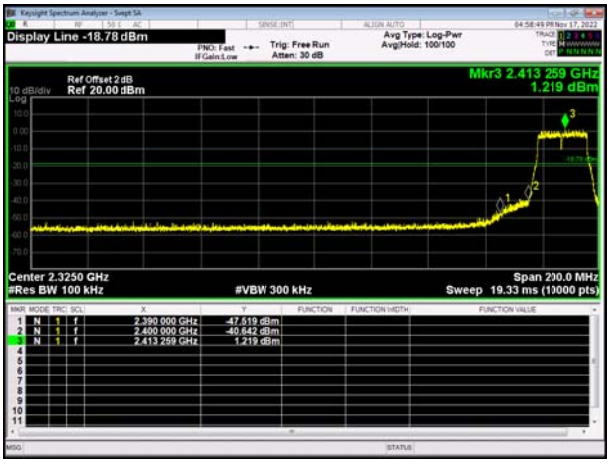
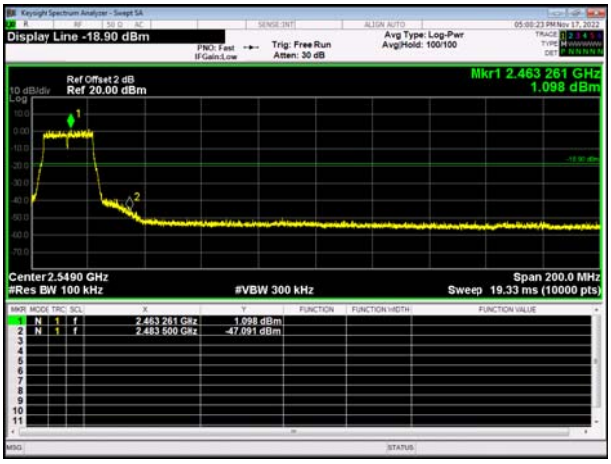


TX N (HT20) Mode _Ant 2

Bandedge-CH01

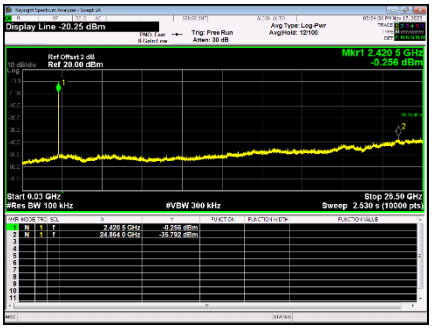


Bandedge-CH11



10th Harmonic of the fundamental frequency

CH01



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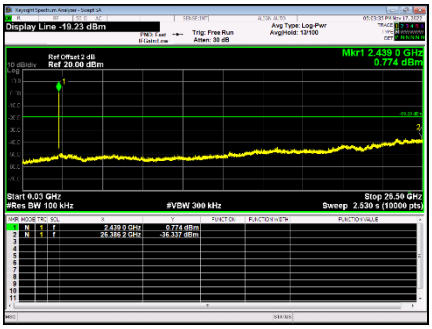
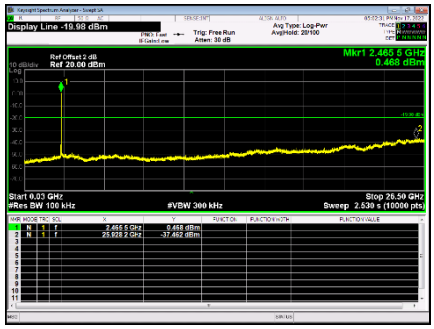


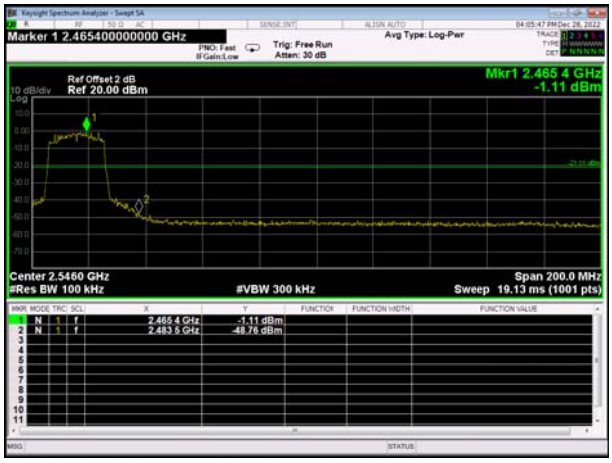
CH11



TX AX (HE20) Mode _Ant 1

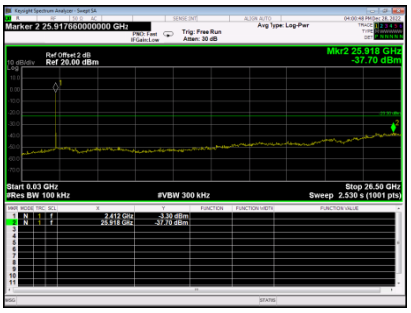
Bandedge-CH01

Bandedge-CH11

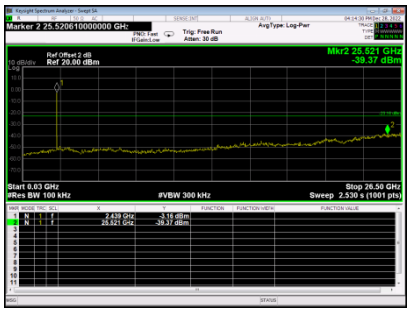


10th Harmonic of the fundamental frequency

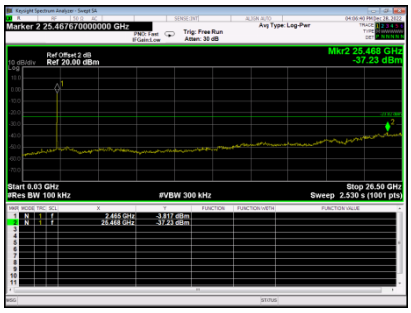
CH01



CH06



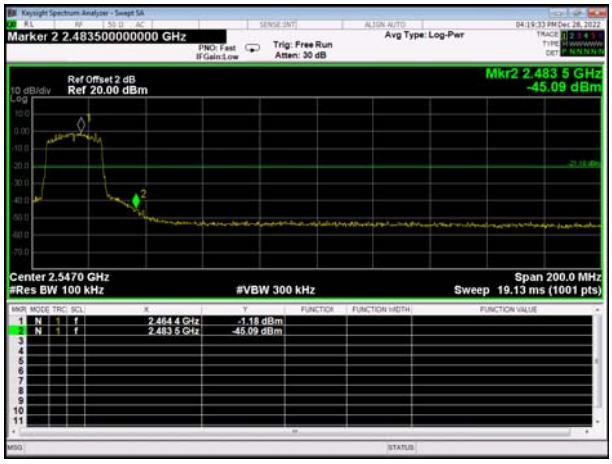
CH11



TX AX (HE20) Mode _Ant 2

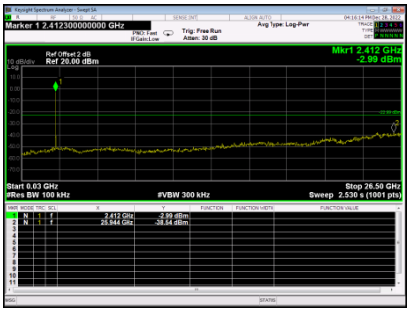
Bandedge-CH01

Bandedge-CH11

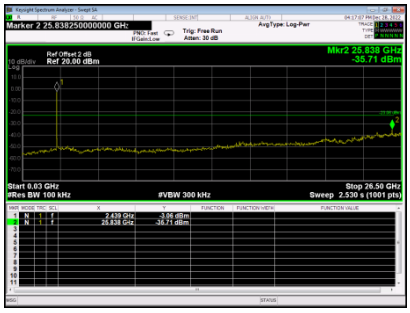


10th Harmonic of the fundamental frequency

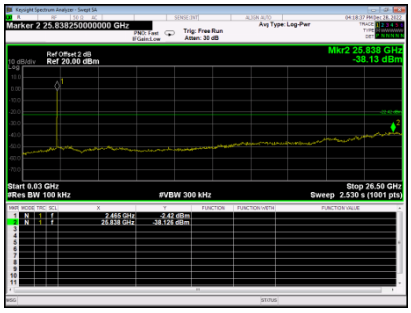
CH01



CH06



CH11



9 POWER SPECTRAL DENSITY TEST

9.1 LIMIT

FCC Part15, Subpart C (15.247)&RSS-247		
Section	Test Item	Limit
15.247(e) RSS-2475.2 (b)	Power Spectral Density	8 dBm (in any 3 kHz)

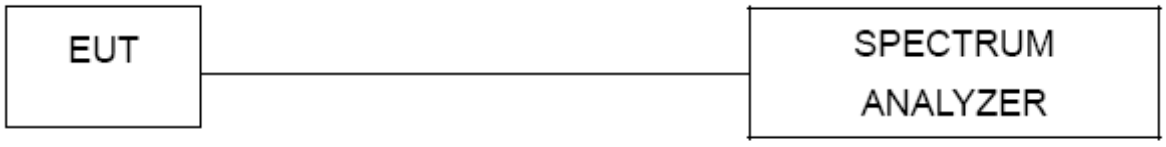
9.2 TEST PROCEDURE AND SETTING

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW=3 kHz, VBW=10 kHz, Sweep time = Auto.
c. The Power Spectral Density was performed in accordance with method11.10.2 of ANSI C63.10-2013.

9.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2023/05/26
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

9.4 TEST SETUP



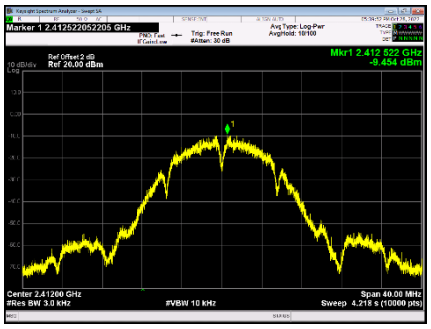
9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

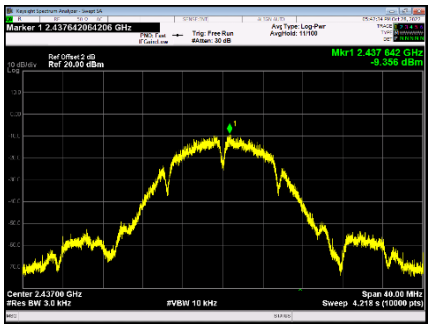
9.6 TESTRESULTS

TX B Mode_Ant 1				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-9.454	8	PASS
06	2437	-9.356	8	PASS
11	2462	-8.514	8	PASS

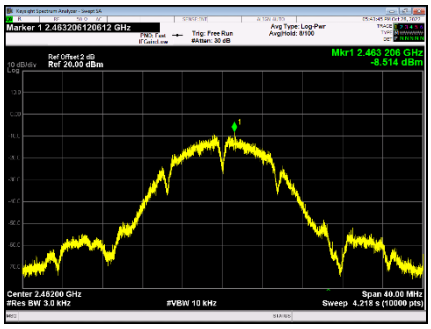
CH01



CH06

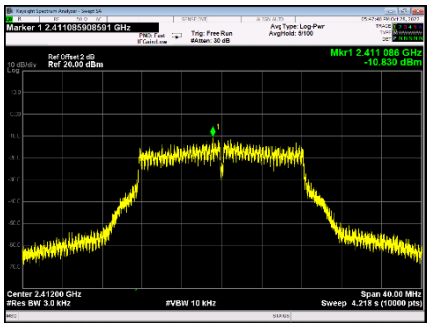


CH11

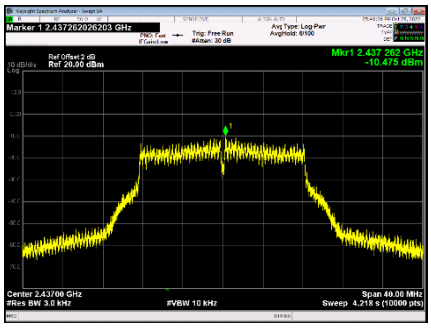


TX G Mode_Ant 1				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-10.830	8	PASS
06	2437	-10.475	8	PASS
11	2462	-11.189	8	PASS

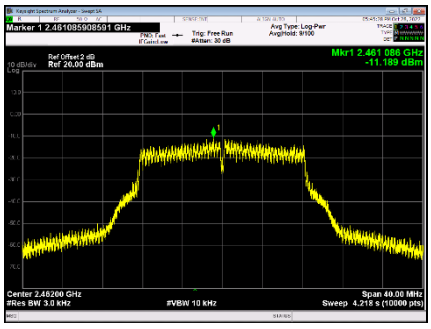
CH01



CH06

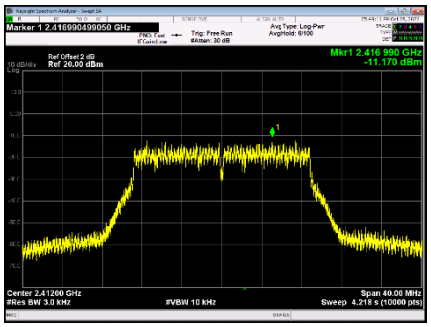


CH11



TX N (HT20) Mode_Ant 1				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-11.170	8	PASS
06	2437	-12.206	8	PASS
11	2462	-12.182	8	PASS

CH01



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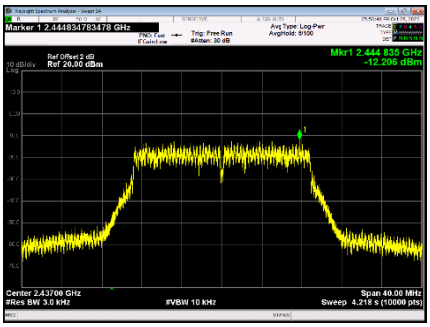
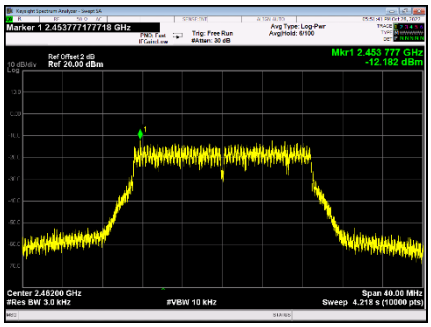
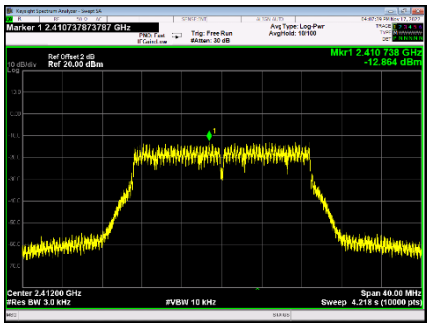


CH11

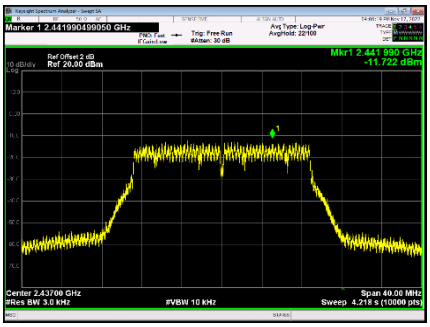


TX N (HT20) Mode_Ant 2				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-12.864	8	PASS
06	2437	-11.722	8	PASS
11	2462	-12.591	8	PASS

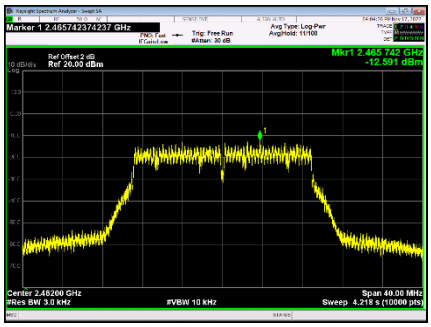
CH01



CH06



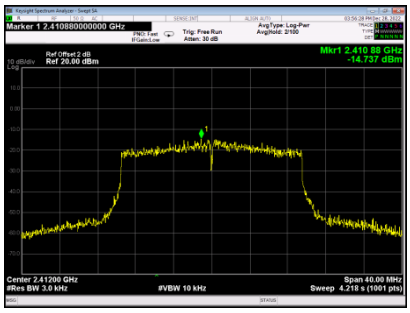
CH11



TX N (HT20) Mode_Total				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-8.92	8	PASS
06	2437	-8.95	8	PASS
11	2462	-9.37	8	PASS

TX AX (HE20) Mode_Ant 1				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-14.737	8	PASS
06	2437	-14.575	8	PASS
11	2462	-13.393	8	PASS

CH03



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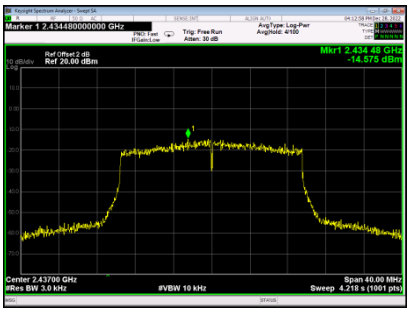
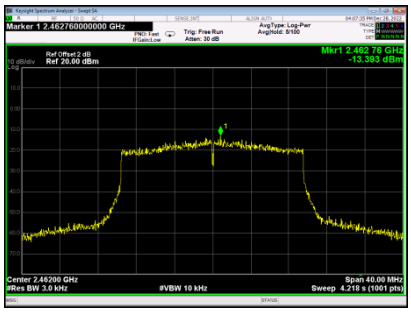
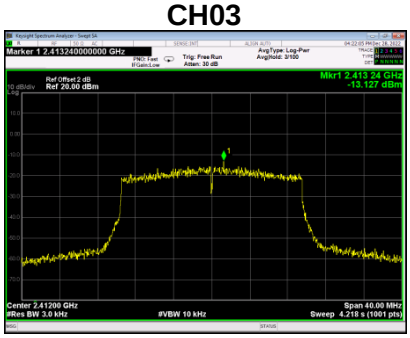


CH09

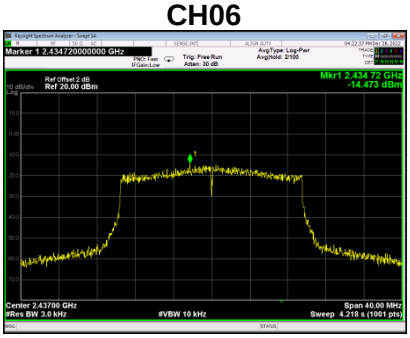


TX AX (HE20) Mode_Ant 2				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-13.127	8	PASS
06	2437	-14.473	8	PASS
11	2462	-12.806	8	PASS

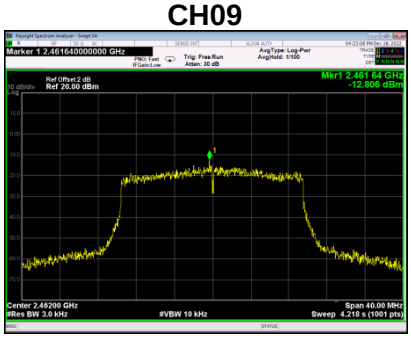
CH03



CH06



CH09



TX AX (HE20) Mode_Total				
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit: <dBm/3KHz	Result
01	2412	-10.85	8	PASS
06	2437	-11.51	8	PASS
11	2462	-10.08	8	PASS

10 FREQUENCY STABILITY MEASUREMENT

10.1 LIMIT

RSS-Gen			
Section	Test Item	Limit	Frequency Range (MHz)
RSS-Gen 6.11	Frequency Stability	Specified in the user's manual	2412-2462

10.2 TEST PROCEDURE AND SETTING

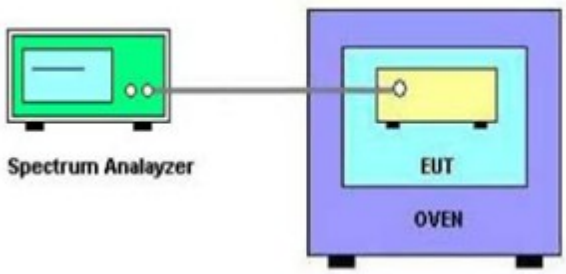
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10kHz
Sweep Time	Auto

10.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2023/05/26
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A
4	Temperature conditioning	Guan Jian.HTH1000	-20-130℃	GJ1000-10D001	N/A
5	DC Power Supply	G.KE	IPR-10010D	010931954	N/A

10.4 TEST SETUP



10.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

10.6 TEST RESULTS

	Temperature vs. Frequency Stability	
Voltage	Temperature	Measurement Frequency (MHz)
120V	(℃)	2412
	0	2411.9832
	25	2411.9874
	40	2411.9838
89V	25	2411.9842
Max. Deviation (MHz)		-0.0168
Max. Deviation (ppm)		-6.97

Note:89V is the end point voltage, and products below 89V will cease working.

END OF TEST REPORT