FCC & ISED Radio Test Report

FCC ID: ACJ-BT3086P
IC: 216A-BT3086P

The report concerns: Original Grant

Report Reference No. ..... :	25EFSS02005 03391
Date Sample(s) Received ..... :	2025-02-10
Date of Tested ..... :	From 2025-02-10 to 2025-05-17
Date of issue ..... :	2025-05-17
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 ..... :	Bluetooth Module
Trade Mark ..... :	Technics
Model ..... :	BT3086P
Ratings ..... :	I/P: DC 5V

Test Engineer: Jelena OuYang

Responsible Engineer : Leo Chen

Authorized Signatory: Smile 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 Kuala Lumpur Malaysia Sdn.Bhd.
Address	Lot 5, Persiaran Tengku Ampuan, Section 21, Shah Alam Industrial Site, 40300 Shah Alam, Selangor Darul Ehsan, Malaysia
Equipment	Bluetooth Module
Model No.	BT3086P
Trade Mark	Technics
Standard	FCC Part15, Subpart C (15.247) RSS-247 Issue 3, Aug. 2023 RSS-Gen Issue 5, Mar. 2019 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 to this device.

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

2.1 MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Uncertainty for Conductionemission 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	2030-08-27
A2LA	4893.01	2026-06-30
Innovation, Science and Economic Development Canada (ISED)	11033A	2026-06-30
Federal Communications Commission (FCC)	171688 Designation No.:CN1235	2026-06-30

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Module	
Brand Name	Technics	
Test Model	BT3086P	
Series Model	N/A	
Model Difference(s)	N/A	
Hardware Version	MU3	
Software Version	0.17	
Power Source	DC 5V	
Power Rating	I/P: DC 5V	
Operation Frequency	2402 MHz ~ 2480 MHz	
Modulation Technology	GFSK	
Bit Rate of Transmitter	1Mbps /2Mbps	
Antenna Information	Antenna Type:PCB	Maximum Peak Gain:1dBi
Max. EIRP	1Mbps: 9.100dBm (0.008128W) 2Mbps: 9.126dBm (0.008177W)	

Note:

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

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

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	BLE 1M TX Mode**NOTE (1)**
Mode 2	BLE 2M TX Mode**NOTE (1)**
Mode 3	BLE 2M TX Mode Channel 39

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 3	BLE 2M TX Mode Channel 39

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 3	BLE 2M TX Mode Channel 39

Radiated emissions test - Above 1GHz	
Final Test Mode	Description
Mode 1	BLE 1M TX Mode**NOTE (1)**
Mode 2	BLE 2M TX Mode**NOTE (1)**

Conducted test	
Final Test Mode	Description
Mode 1	BLE 1M TX Mode**NOTE (1)**
Mode 2	BLE 2M TX Mode**NOTE (1)**

Note:

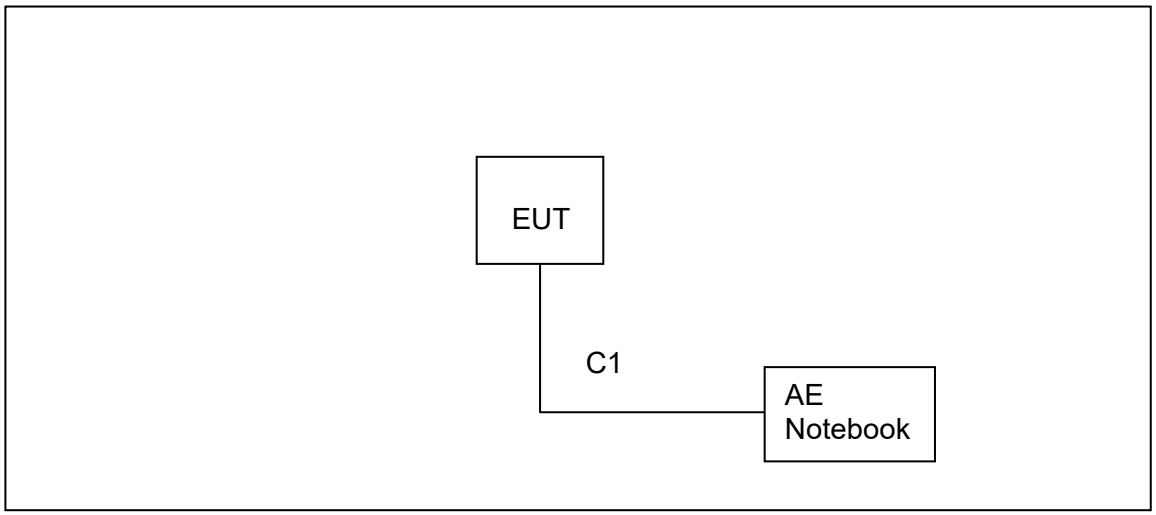
(1) The measurements are performed at the high, middle, low available channels.

3.3 PARAMETERS OF TEST SOFTWARE

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of BT LE

Test Software	BlueTest3		
Frequency (MHz)	2402	2440	2480
Parameters-1Mbps	Default	Default	Default
Parameters-2Mbps	Default	Default	Default

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	22.3°C	58%	DC 5V (AC 120V 60Hz)
Radiated Emissions-9K-30MHz	22°C	60%	DC 5V
Radiated Emissions-30 MHz to 1GHz	24.1°C	42%	DC 5V
Radiated Emissions-Above 1000 MHz	24.1°C	42%	DC 5V
Bandwidth	24°C	52%	DC 5V
Maximum Output Power	24°C	52%	DC 5V
ConductedSpurious Emission	24°C	52%	DC 5V
Power Spectral Density	24°C	52%	DC 5V

4 AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

Frequency of Emission (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 -0.50	66 to 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 equipmentpowered 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 groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

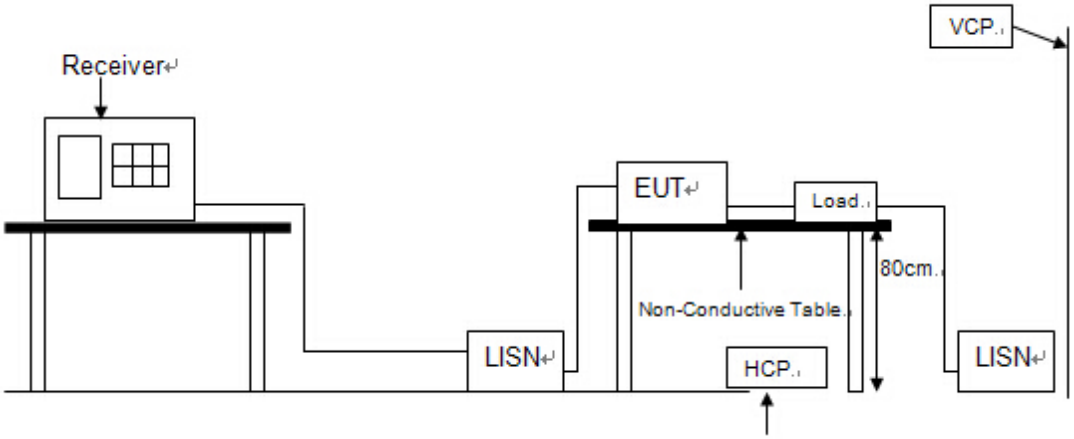
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

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	11/17/2025
2	EMI Test Receiver	R&S	ESCI	101308	06/05/2025
3	LISN	AFJ	LS16	16011103219	06/05/2025
4	LISN	Schwarzbeck	NSLK 8127	8127-432	06/05/2025
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

4.4 TESTSETUP



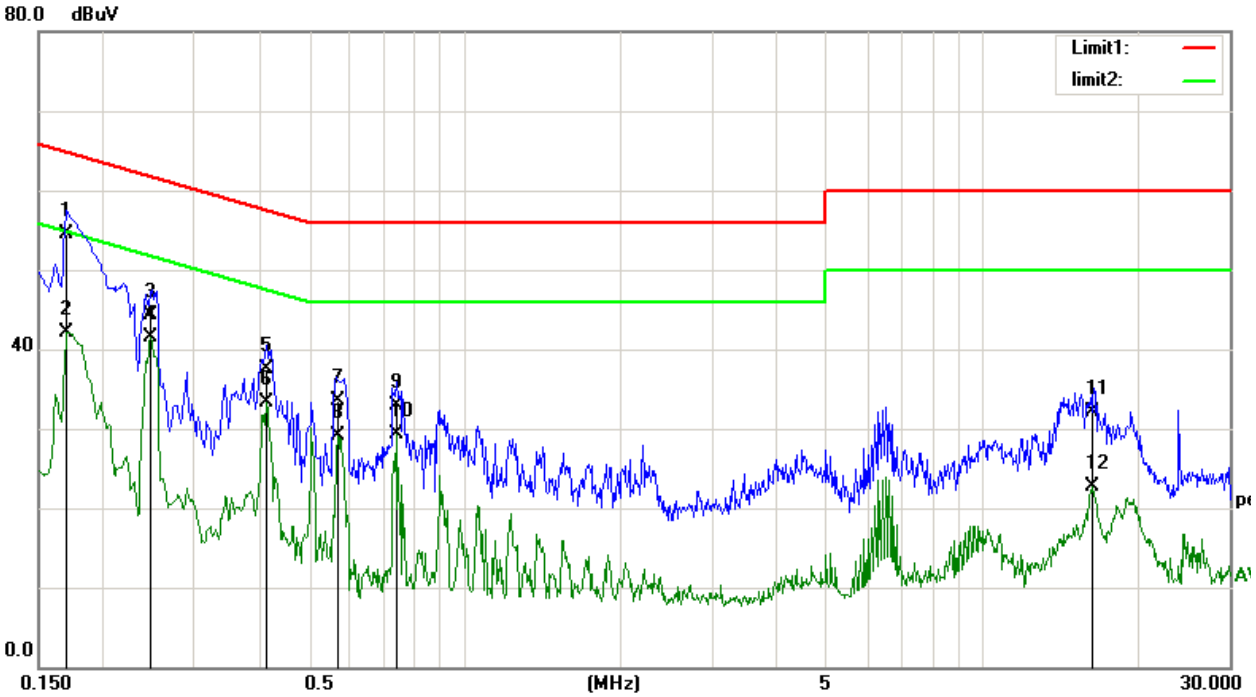
4.5 EUT OPERATING CONDITIONS

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:	BLE 2M TX Mode Channel 39

Line

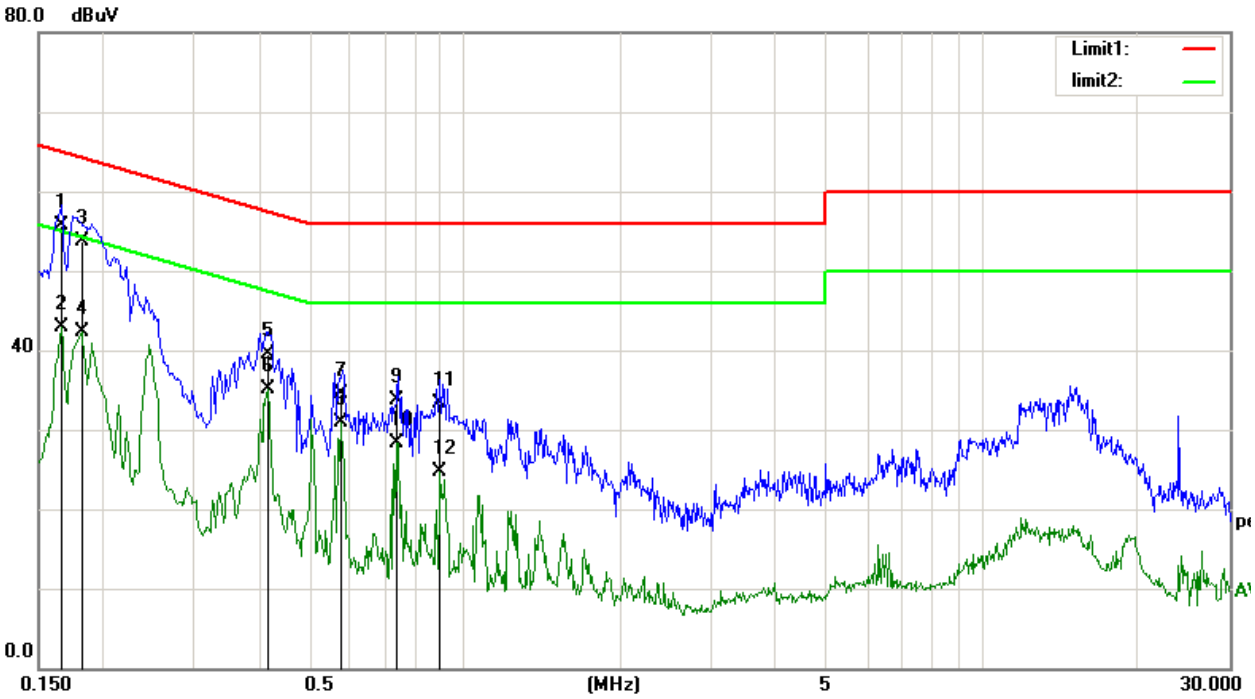


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1700	43.95	10.57	54.52	64.96	-10.44	QP
2	0.1700	31.53	10.57	42.10	54.96	-12.86	AVG
3	0.2467	33.84	10.55	44.39	61.86	-17.47	QP
4	0.2467	30.89	10.55	41.44	51.86	-10.42	AVG
5	0.4138	27.13	10.41	37.54	57.57	-20.03	QP
6	0.4138	22.95	10.41	33.36	47.57	-14.21	AVG
7	0.5695	22.91	10.61	33.52	56.00	-22.48	QP
8	0.5695	18.43	10.61	29.04	46.00	-16.96	AVG
9	0.7378	22.41	10.54	32.95	56.00	-23.05	QP
10	0.7378	18.78	10.54	29.32	46.00	-16.68	AVG
11	16.3978	21.14	10.90	32.04	60.00	-27.96	QP
12	16.3978	11.81	10.90	22.71	50.00	-27.29	AVG

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

Test Mode:	BLE 2M TX Mode Channel 39

Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1660	45.09	10.59	55.68	65.15	-9.47	QP
2	0.1660	32.24	10.59	42.83	55.15	-12.32	AVG
3	0.1819	43.17	10.59	53.76	64.39	-10.63	QP
4	0.1819	31.70	10.59	42.29	54.39	-12.10	AVG
5	0.4178	29.04	10.42	39.46	57.49	-18.03	QP
6	0.4178	24.73	10.42	35.15	47.49	-12.34	AVG
7	0.5776	23.84	10.62	34.46	56.00	-21.54	QP
8	0.5776	20.23	10.62	30.85	46.00	-15.15	AVG
9	0.7378	23.24	10.54	33.78	56.00	-22.22	QP
10	0.7378	17.74	10.54	28.28	46.00	-17.72	AVG
11	0.8980	22.79	10.47	33.26	56.00	-22.74	QP
12	0.8980	14.22	10.47	24.69	46.00	-21.31	AVG

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

5 RADIATED EMISSION TEST

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 8.9 limit 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 metersemi-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 or 1.5m 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)	RBW 1MHz VBW 3MHz peak detector for Pk value RMS detector for AV value

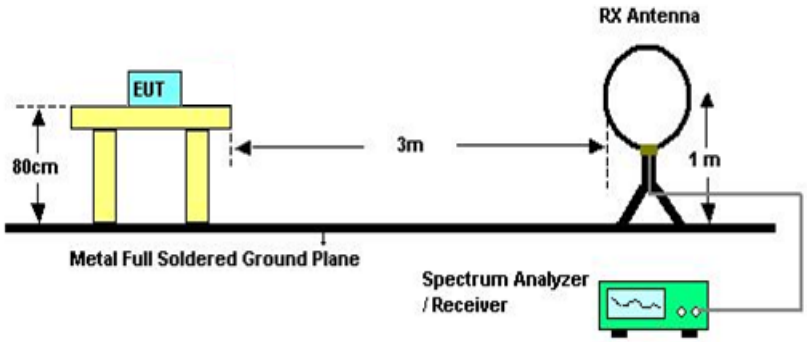
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz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

5.3 MEASUREMENT INSTRUMENTS LIST

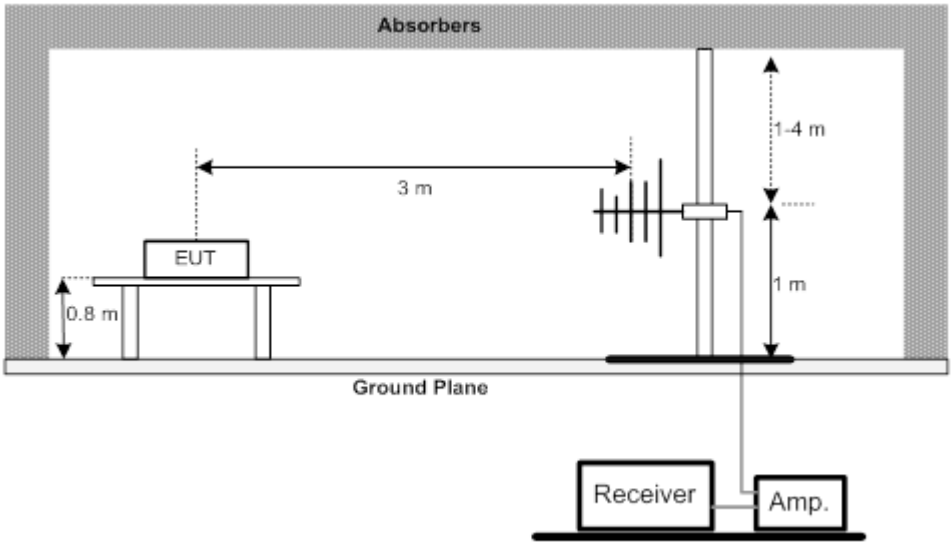
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101307	06/05/2025
2	Spectrum Analyzer	Agilent	E4407B	US40240708	11/17/2025
3	Loop antenna	SCHWARZBECK K	FMZB1519	1519-062	03/30/2025
4	Broadband antenna	SCHWARZBECK	VULB9168	VULB9168-192	03/29/2025
5	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D 1065	03/29/2025
6	Preamplifier Amplifier	HP	8447F	3113A05680	11/17/2025
7	PRE-AMPLIFIER	EMEC	EM01G26G	980136	03/29/2025
8	RF Cable	R&S	Test Cable 4	4	11/17/2025
9	RF Cable	R&S	Test Cable 5	5	11/17/2025
10	RF Cable	R&S	Test Cable 9	9	04/17/2025
11	RF Cable	R&S	Test Cable 10	10	04/17/2025
12	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

5.4 TESTSETUP

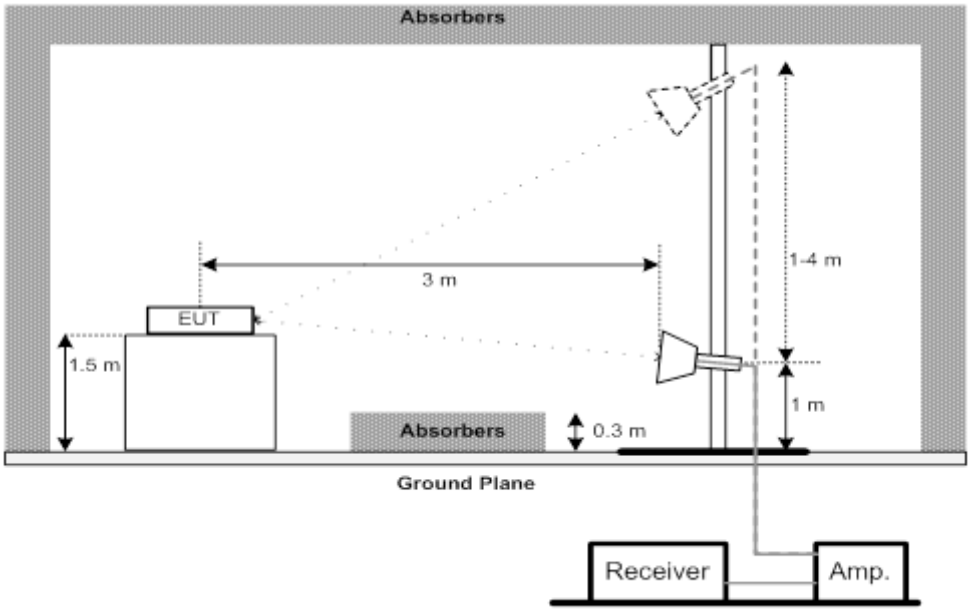
9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz



5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULT- 9kHz TO 30MHz

Test Mode:	BLE 2M TX Mode Channel 39

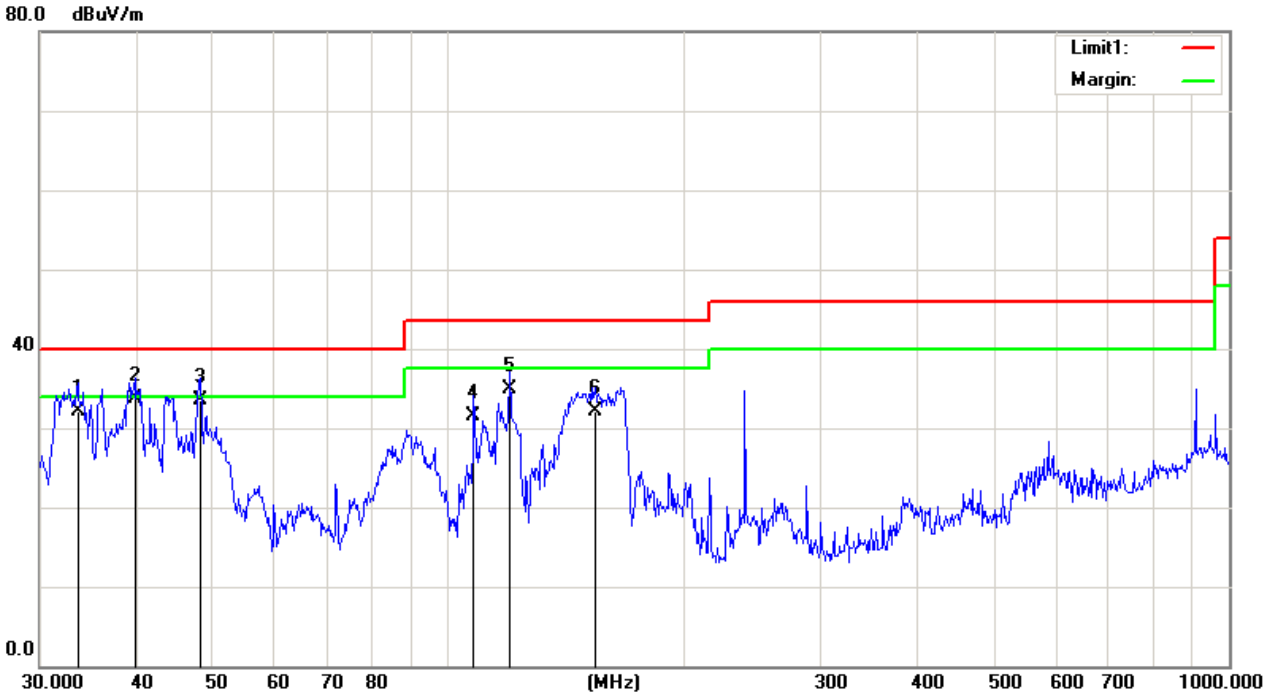
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

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 RESULT- 30MHz TO 1000MHz

Test Mode :	BLE 2M TX Mode Channel 39

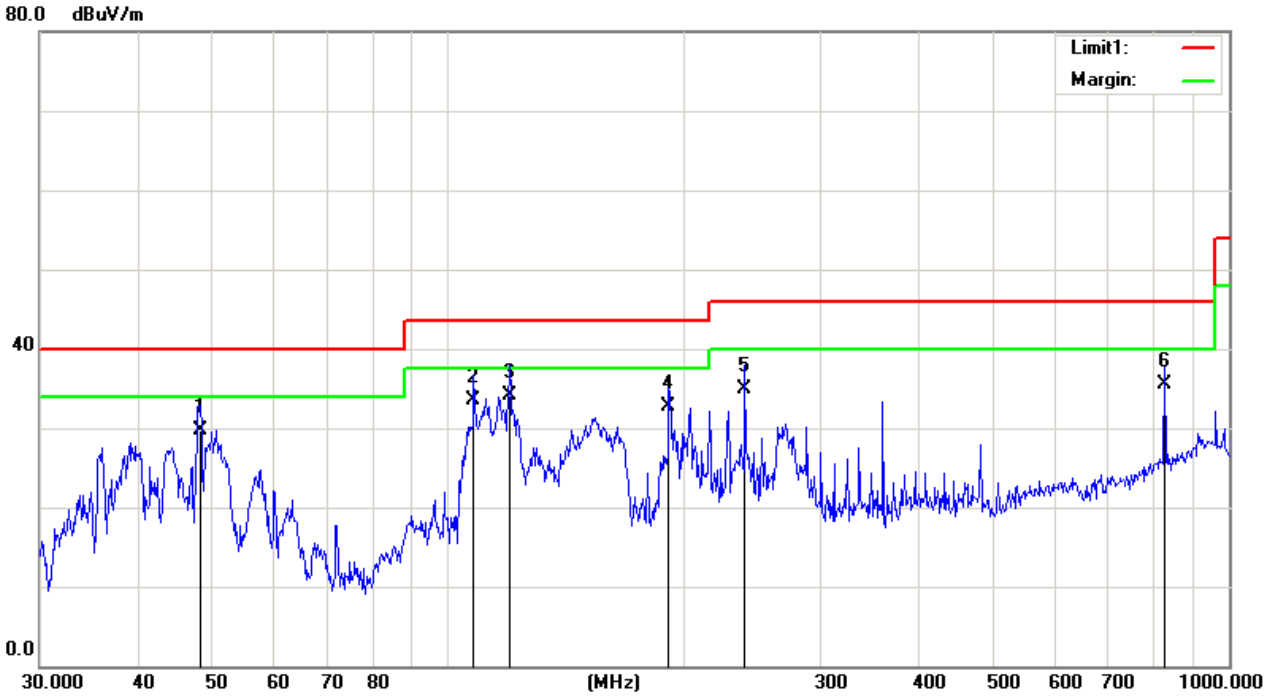
Vertical



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		33.5623	46.94	-14.79	32.15	40.00	-7.85	QP	100	108	
2	*	39.7146	47.49	-13.80	33.69	40.00	-6.31	QP	300	25	
3		48.1625	47.72	-14.31	33.41	40.00	-6.59	QP	100	136	
4		107.8876	46.68	-15.10	31.58	43.50	-11.92	QP	200	0	
5		119.8555	48.95	-14.06	34.89	43.50	-8.61	QP	100	147	
6		154.2786	42.99	-10.88	32.11	43.50	-11.39	QP	100	222	

Test Mode :	BLE 2M TX Mode Channel 39

Horizontal

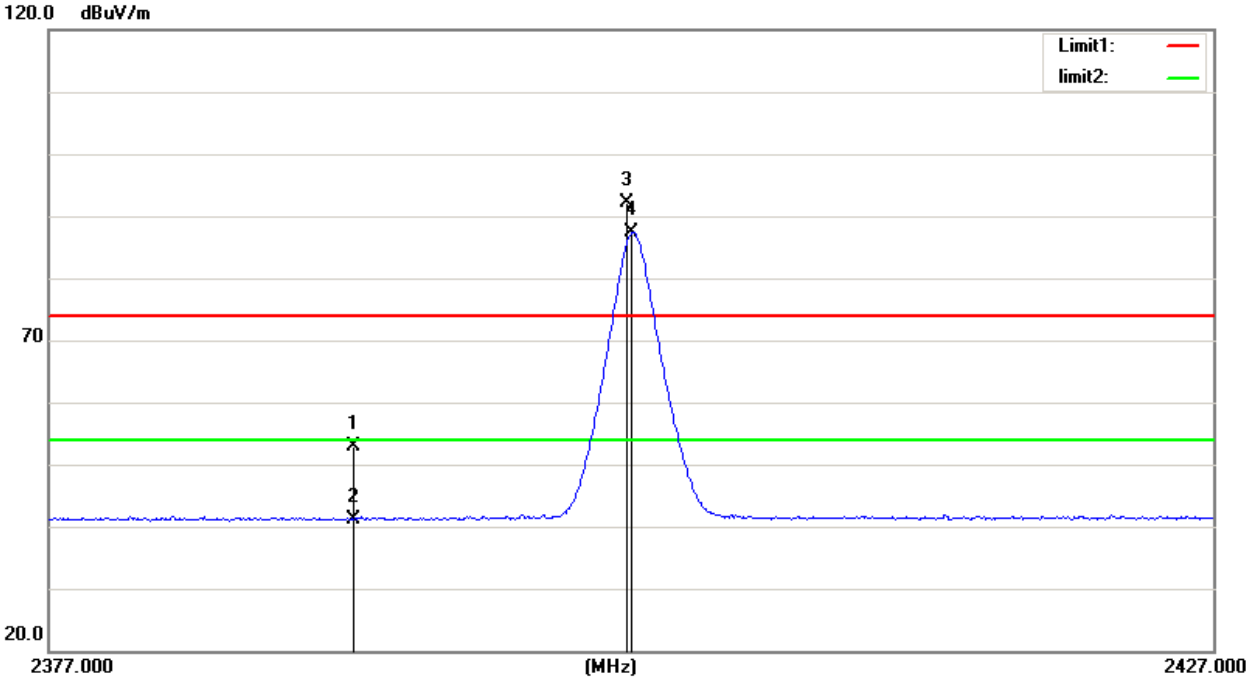


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		48.1626	43.99	-14.31	29.68	40.00	-10.32	QP	100	186	
2		107.8877	48.64	-15.10	33.54	43.50	-9.96	QP	100	2	
3	*	119.8556	48.21	-14.06	34.15	43.50	-9.35	QP	300	123	
4		191.7450	46.12	-13.47	32.65	43.50	-10.85	QP	100	2	
5		239.9874	47.25	-12.40	34.85	46.00	-11.15	QP	100	12	
6		827.4934	35.49	-0.02	35.47	46.00	-10.53	QP	200	265	

5.8 TEST RESULT- ABOVE 1000MHz (BAND EDGE)

Test Mode:	TX 2402 MHz_CH00_1Mbps

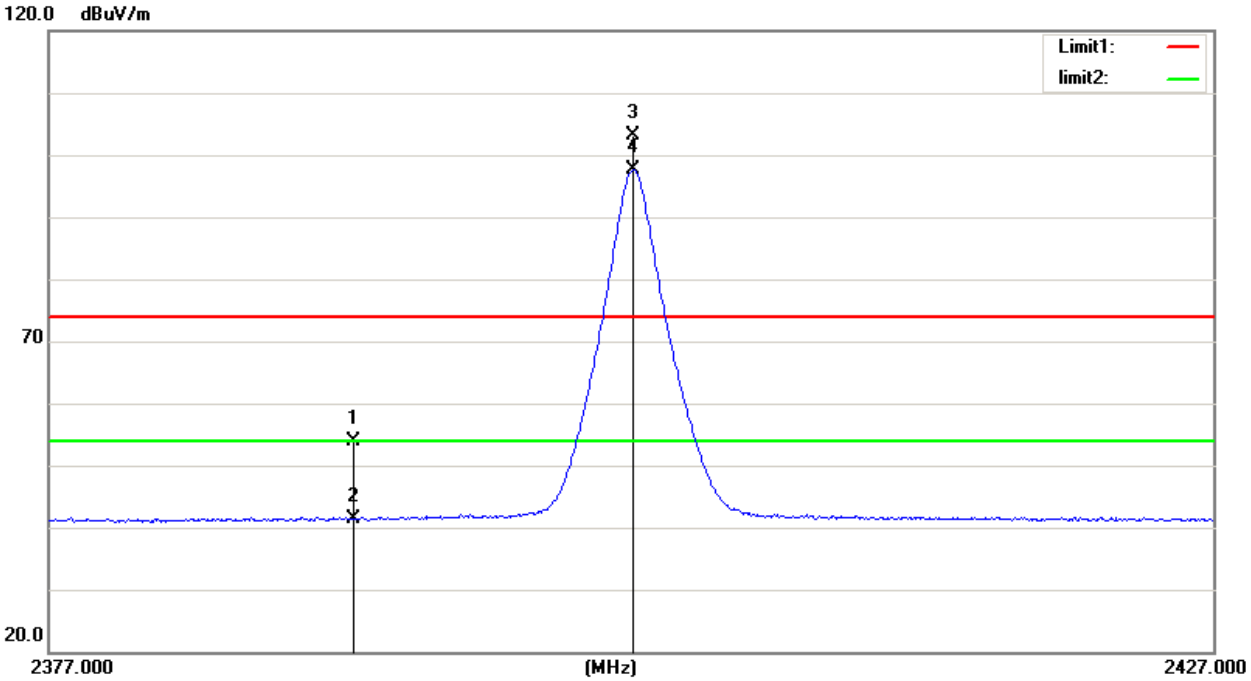
Vertical



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	22.75	30.14	52.89	74.00	-21.11	peak	150	268	
2		2390.000	11.04	30.14	41.18	54.00	-12.82	AVG	150	268	
3	X	2401.750	61.96	30.15	92.11	74.00	18.11	peak	150	268	No Limit
4	*	2401.950	57.18	30.15	87.33	54.00	33.33	AVG	150	268	No Limit

Test Mode:	TX 2402 MHz_CH00_1Mbps

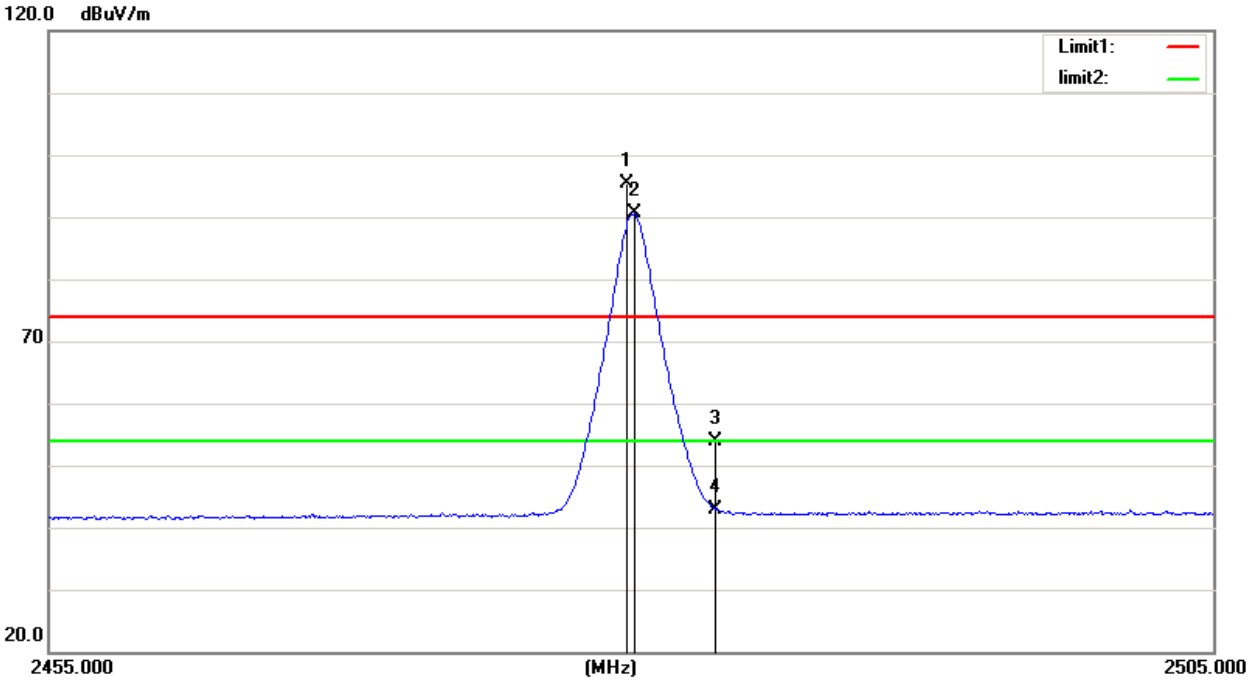
Horizontal



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	23.69	30.14	53.83	74.00	-20.17	peak	150	19	
2		2390.000	11.12	30.14	41.26	54.00	-12.74	AVG	150	19	
3	X	2402.000	72.96	30.15	103.11	74.00	29.11	peak	150	19	No Limit
4	*	2402.000	67.50	30.15	97.65	54.00	43.65	AVG	150	19	No Limit

Test Mode:	TX 2480 MHz_CH39_1Mbps

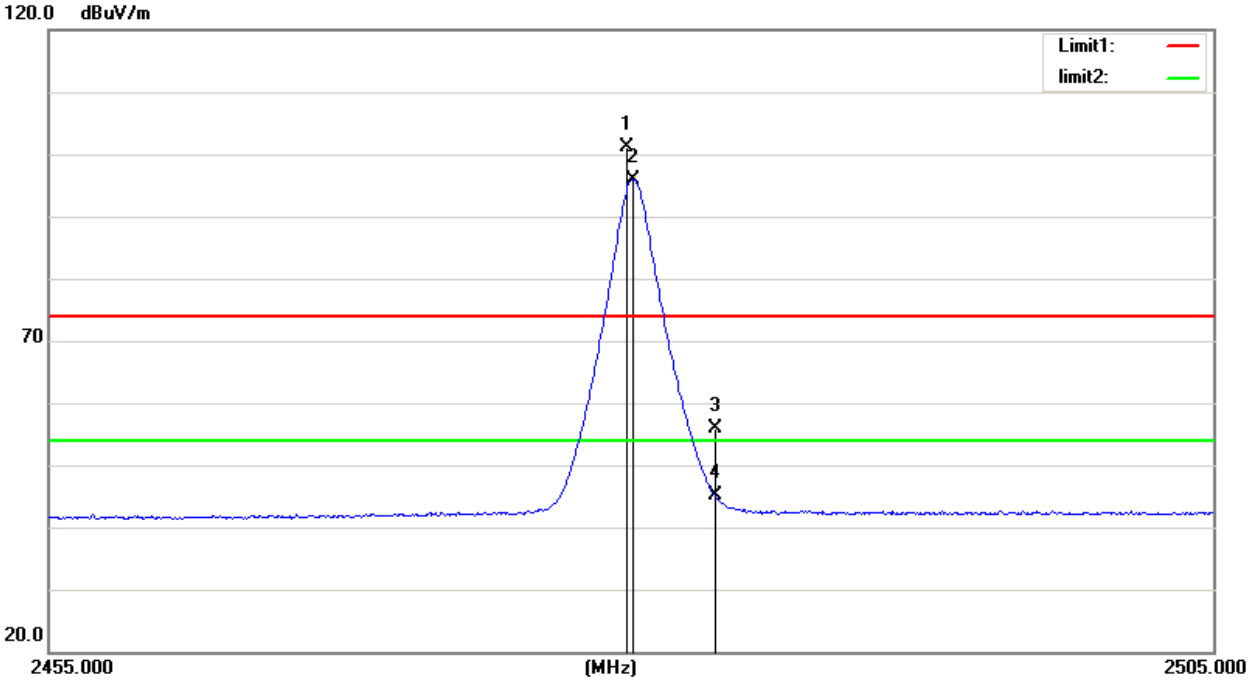
Vertical



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	2479.750	64.82	30.67	95.49	74.00	21.49	peak	150	241	No Limit
2	*	2480.050	59.85	30.67	90.52	54.00	36.52	AVG	150	241	No Limit
3		2483.500	23.05	30.71	53.76	74.00	-20.24	peak	150	241	
4		2483.500	12.27	30.71	42.98	54.00	-11.02	AVG	150	241	

Test Mode:	TX 2480 MHz_CH39_1Mbps

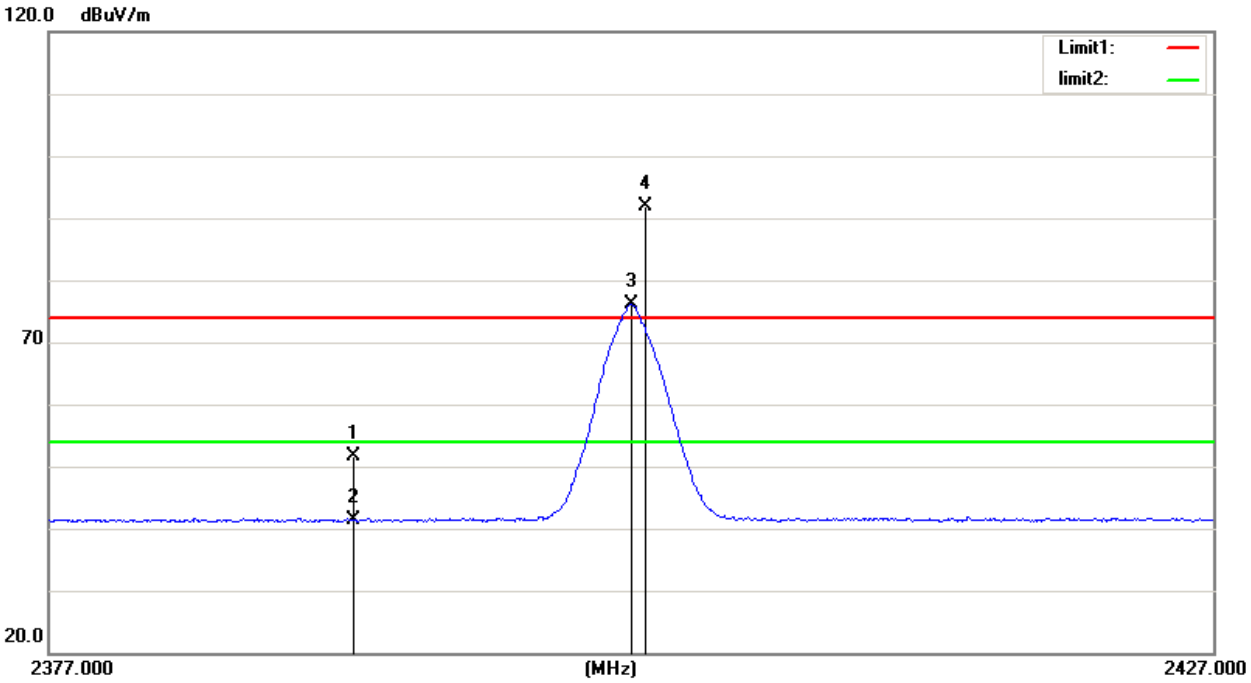
Horizontal



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	2479.750	70.52	30.67	101.19	74.00	27.19	peak	150	56	No Limit
2	*	2480.000	65.29	30.67	95.96	54.00	41.96	AVG	150	56	No Limit
3		2483.500	25.11	30.71	55.82	74.00	-18.18	peak	150	56	
4		2483.500	14.39	30.71	45.10	54.00	-8.90	AVG	150	56	

Test Mode:	TX 2402 MHz_CH00_2Mbps

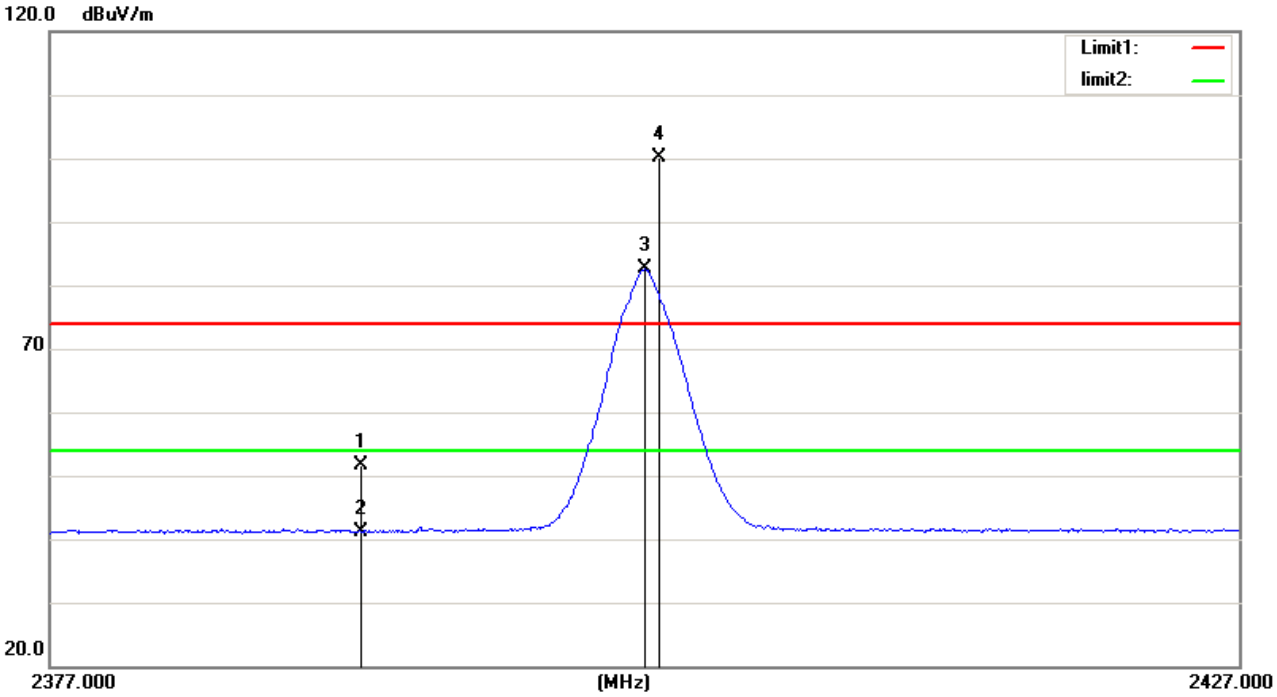
Vertical



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	21.39	30.14	51.53	74.00	-22.47	peak	150	269	
2		2390.000	11.16	30.14	41.30	54.00	-12.70	AVG	150	269	
3	*	2401.900	46.05	30.15	76.20	54.00	22.20	AVG	150	269	No Limit
4	X	2402.550	61.82	30.15	91.97	74.00	17.97	peak	150	269	No Limit

Test Mode:	TX 2402 MHz_CH00_2Mbps

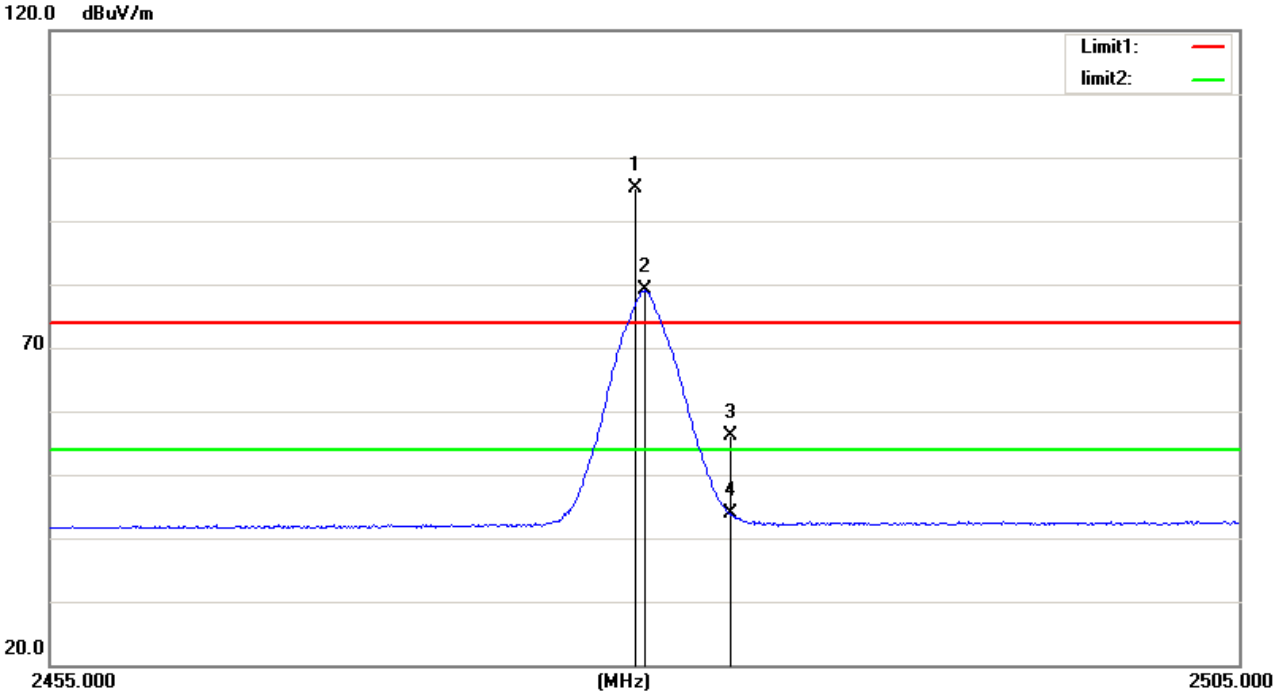
Horizontal



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	21.60	30.14	51.74	74.00	-22.26	peak	150	50	
2		2390.000	11.05	30.14	41.19	54.00	-12.81	AVG	150	50	
3	*	2401.900	52.39	30.15	82.54	54.00	28.54	AVG	150	50	No Limit
4	X	2402.550	69.87	30.15	100.02	74.00	26.02	peak	150	50	No Limit

Test Mode:	TX 2480 MHz_CH39_2Mbps

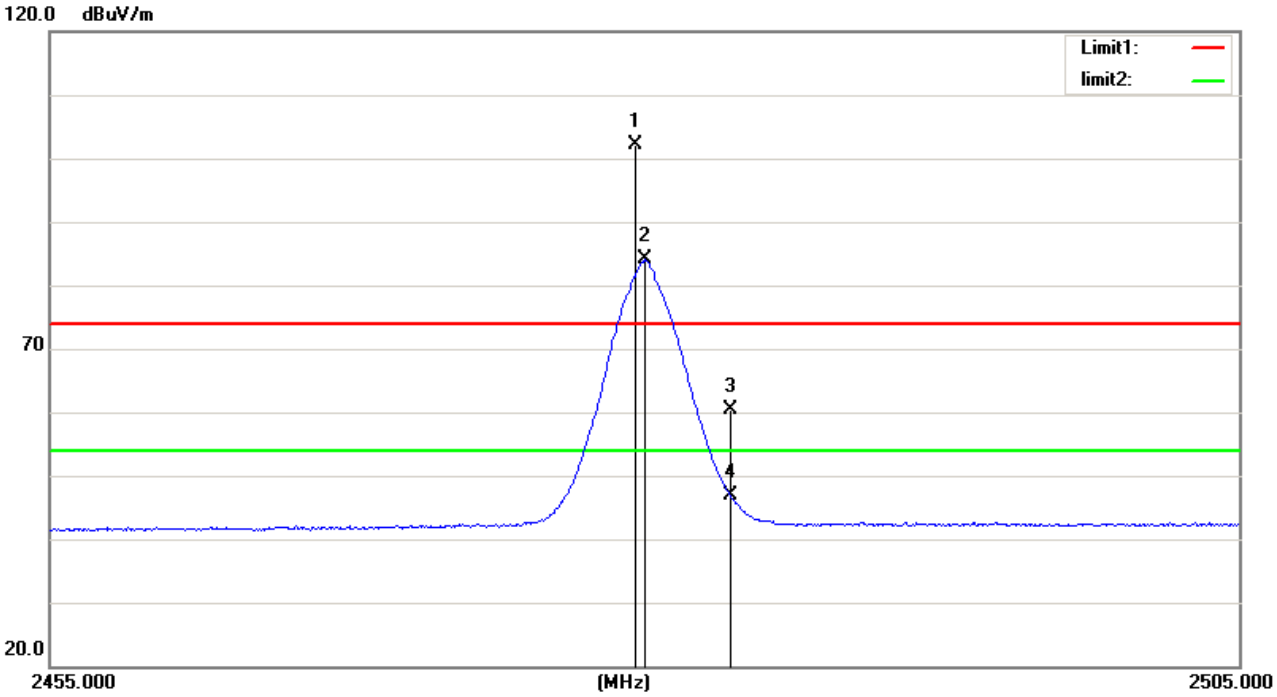
Vertical



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	2479.500	64.53	30.66	95.19	74.00	21.19	peak	150	246	No Limit
2	*	2479.900	48.41	30.67	79.08	54.00	25.08	AVG	150	246	No Limit
3		2483.500	25.48	30.71	56.19	74.00	-17.81	peak	150	246	
4		2483.500	13.10	30.71	43.81	54.00	-10.19	AVG	150	246	

Test Mode:	TX 2480 MHz_CH39_2Mbps

Horizontal

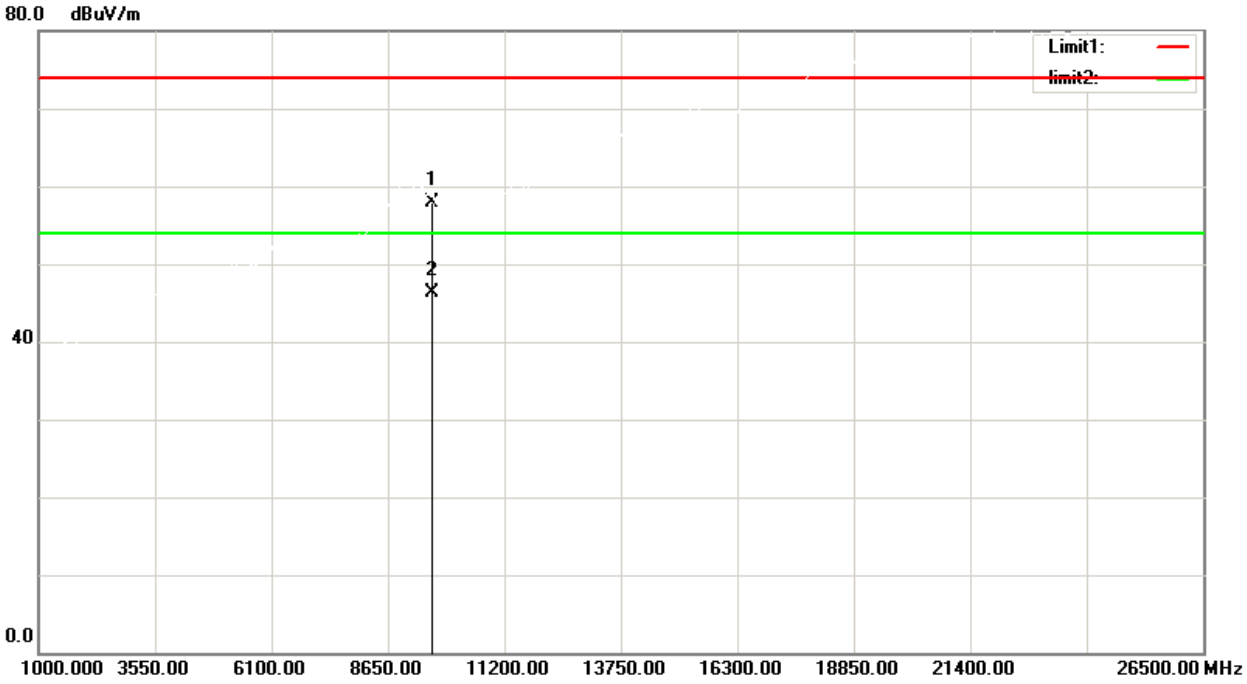


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2479.500	71.42	30.66	102.08	74.00	28.08	peak	150	50	No Limit
2	*	2479.900	53.35	30.67	84.02	54.00	30.02	AVG	150	50	No Limit
3		2483.500	29.66	30.71	60.37	74.00	-13.63	peak	150	50	
4		2483.500	16.20	30.71	46.91	54.00	-7.09	AVG	150	50	

5.9 TEST RESULTS - ABOVE 1000MHz(HARMONIC)

Test Mode:	TX 2402 MHz_CH00_1Mbps

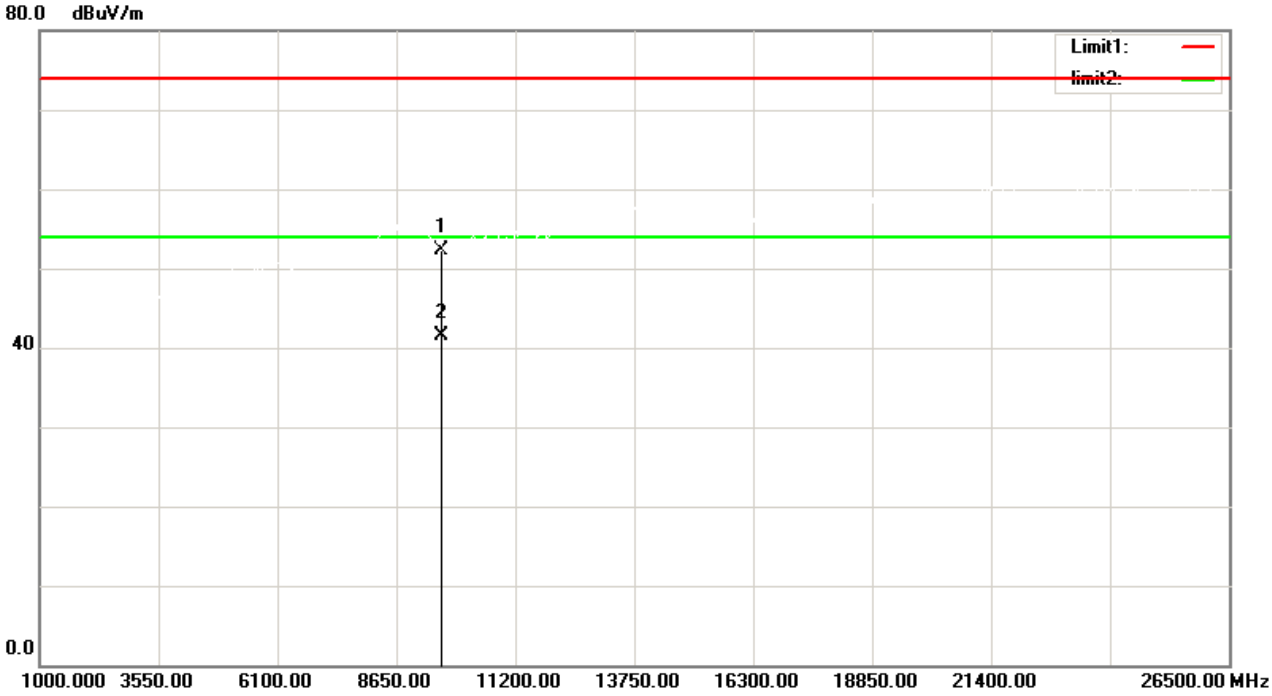
Vertical



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		9608.000	43.01	14.88	57.89	74.00	-16.11	peak	150	106	
2	*	9608.000	31.47	14.88	46.35	54.00	-7.65	AVG	150	106	

Test Mode:	TX 2402 MHz_CH00_1Mbps

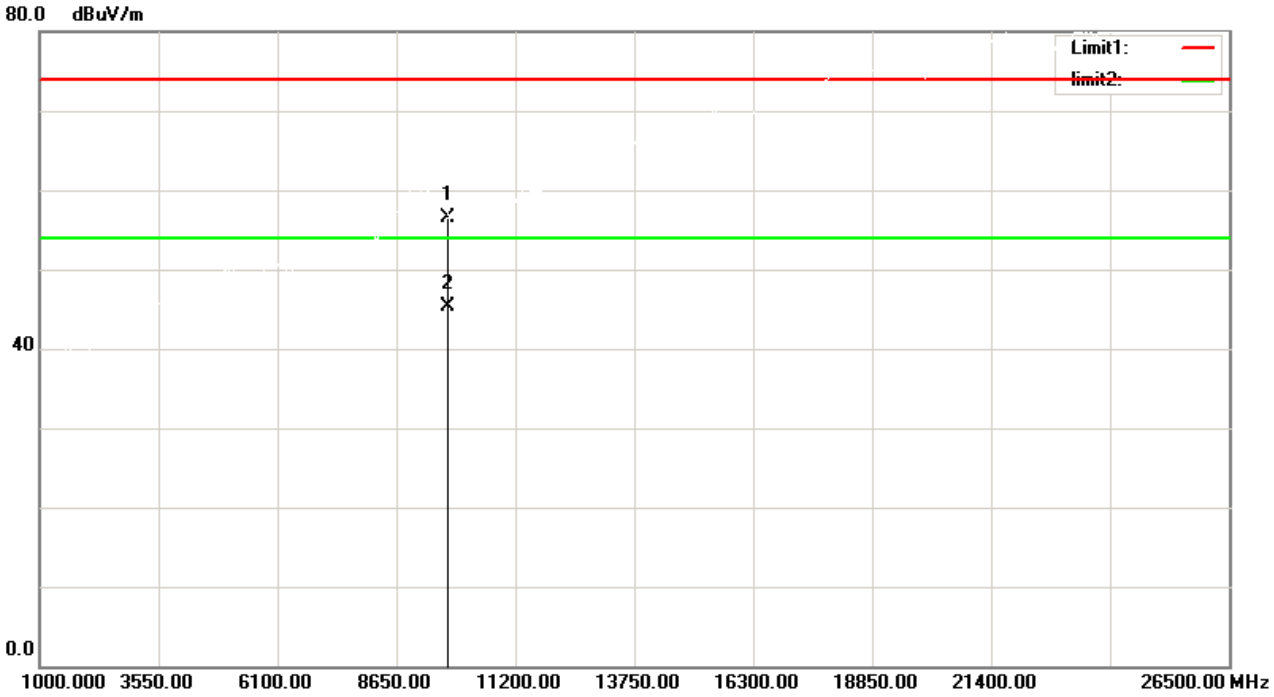
Horizontal



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		9608.000	37.51	14.88	52.39	74.00	-21.61	peak	150	99	
2	*	9608.000	26.71	14.88	41.59	54.00	-12.41	AVG	150	99	

Test Mode:	TX 2440 MHz_CH19_1Mbps

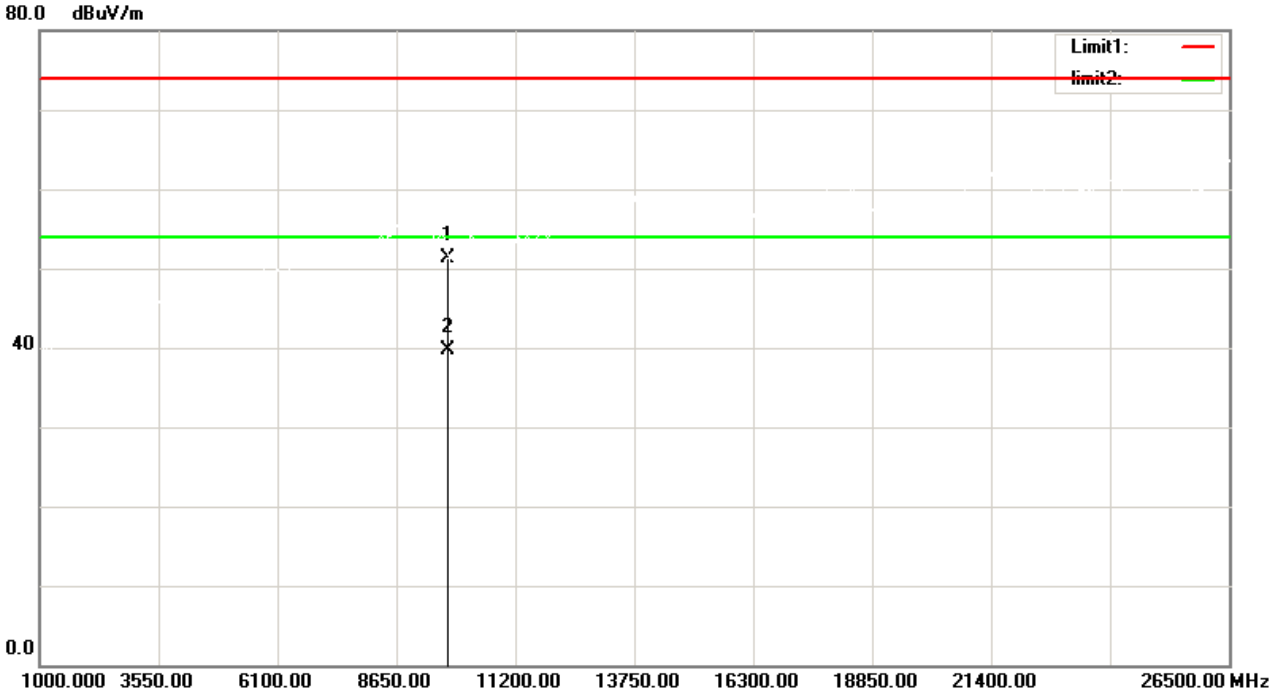
Vertical



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		9760.000	42.45	14.09	56.54	74.00	-17.46	peak	150	29	
2	*	9760.000	31.17	14.09	45.26	54.00	-8.74	AVG	150	29	

Test Mode:	TX 2440 MHz_CH19_1Mbps

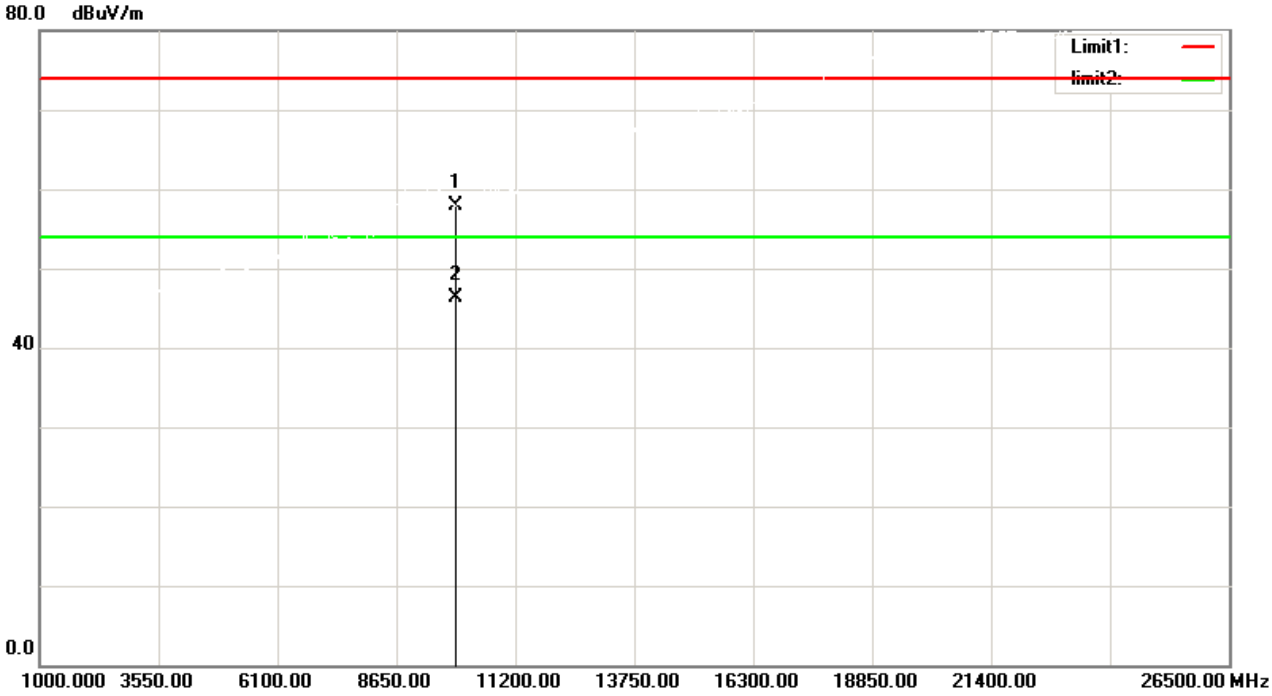
Horizontal



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		9760.000	37.29	14.09	51.38	74.00	-22.62	peak	150	54	
2	*	9760.000	25.59	14.09	39.68	54.00	-14.32	AVG	150	54	

Test Mode:	TX 2480 MHz_CH39_1Mbps

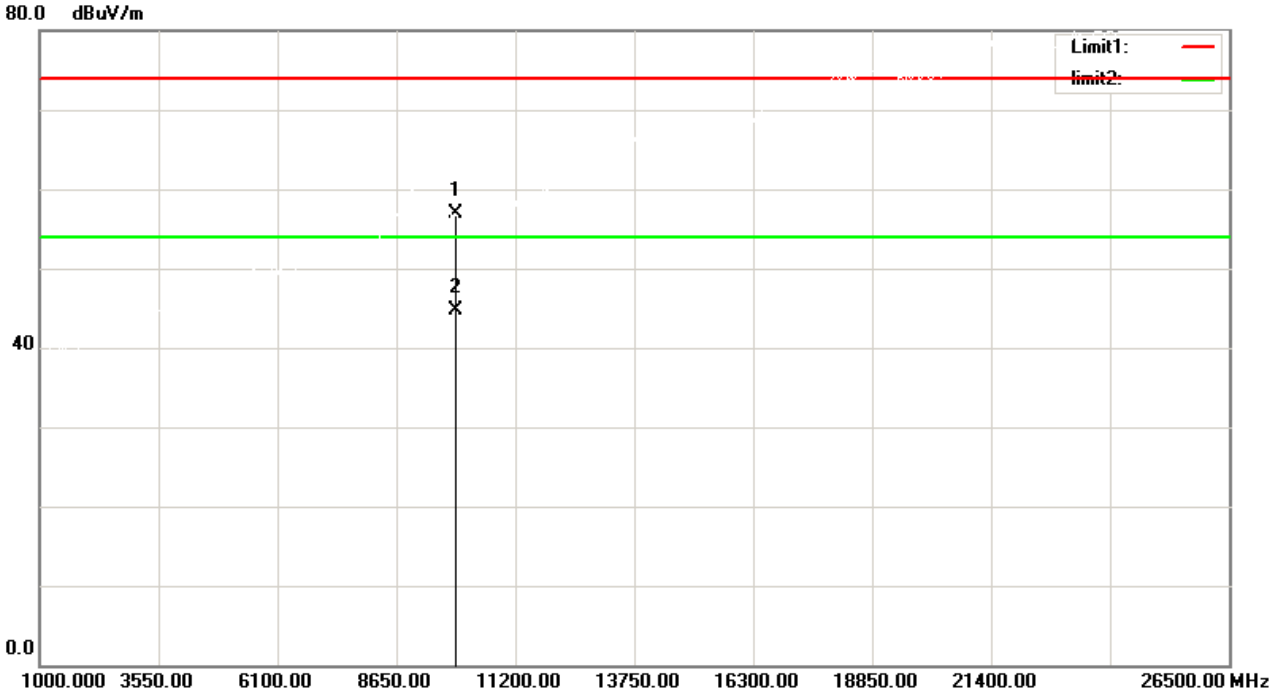
Vertical



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		9920.000	44.50	13.33	57.83	74.00	-16.17	peak	150	103	
2	*	9920.000	33.02	13.33	46.35	54.00	-7.65	AVG	150	103	

Test Mode:	TX 2480 MHz_CH39_1Mbps

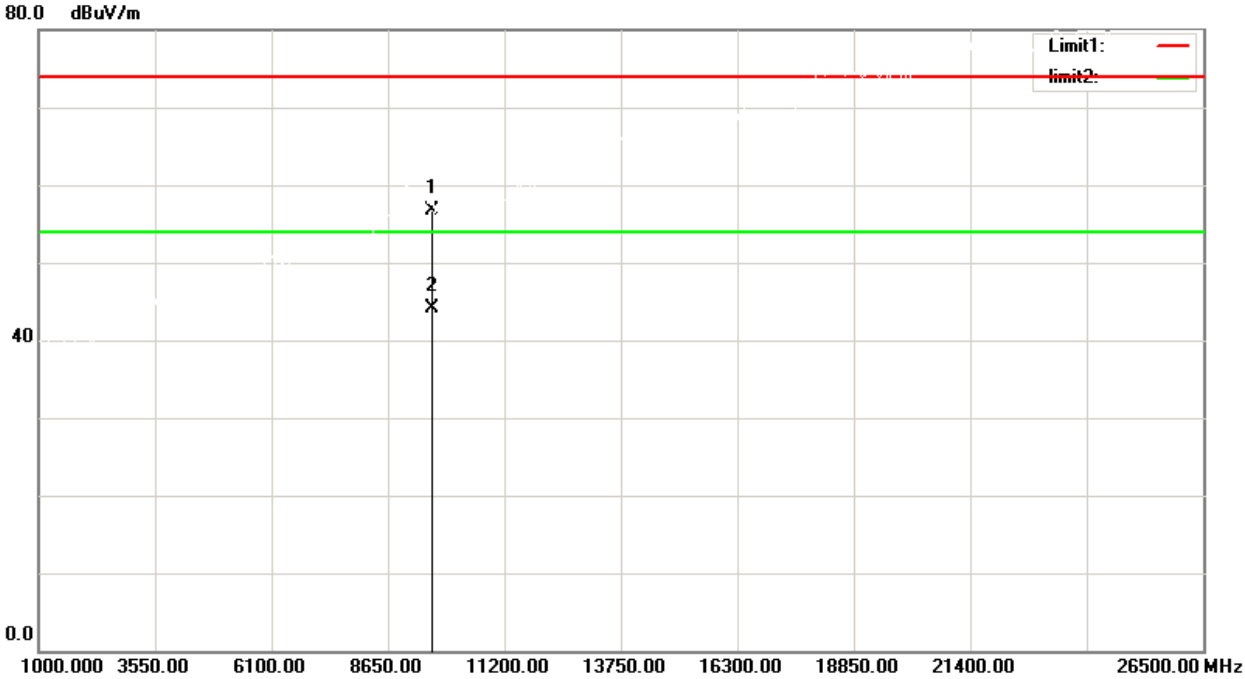
Horizontal



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		9920.000	43.55	13.33	56.88	74.00	-17.12	peak	150	78	
2	*	9920.000	31.36	13.33	44.69	54.00	-9.31	AVG	150	78	

Test Mode:	TX 2402 MHz_CH00_2Mbps

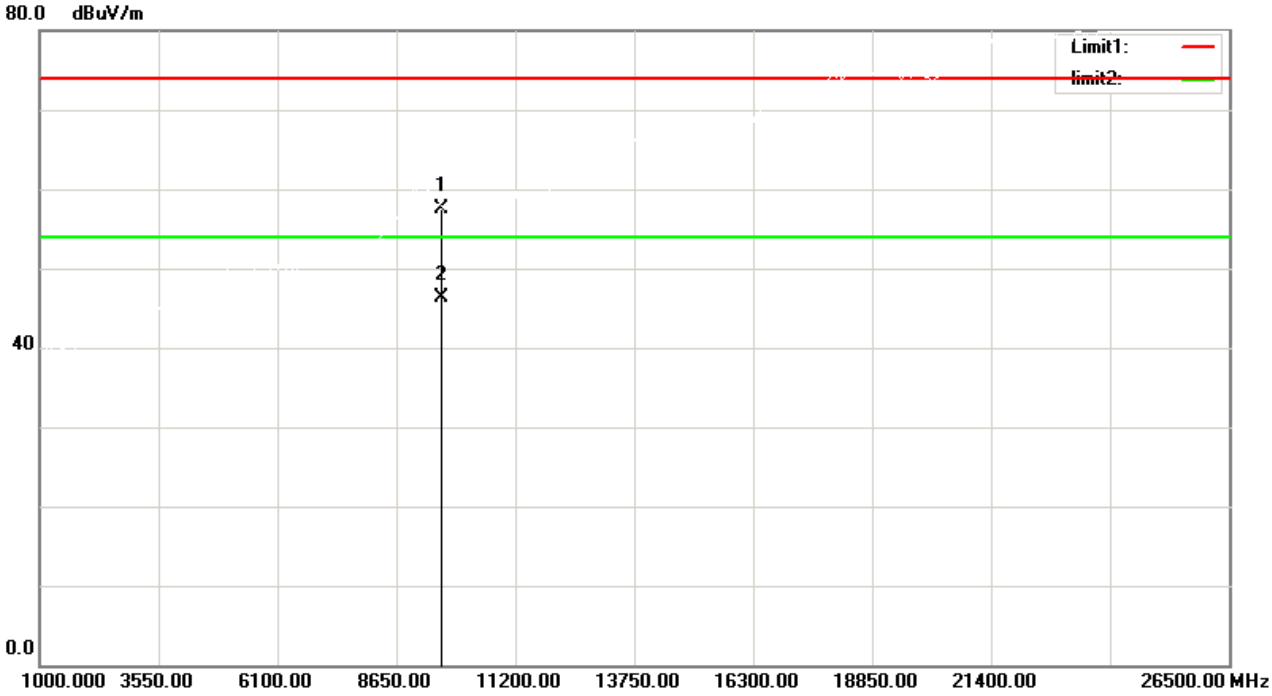
Vertical



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		9608.000	41.85	14.88	56.73	74.00	-17.27	peak	150	105	
2	*	9608.000	29.24	14.88	44.12	54.00	-9.88	AVG	150	105	

Test Mode:	TX 2402 MHz_CH00_2Mbps

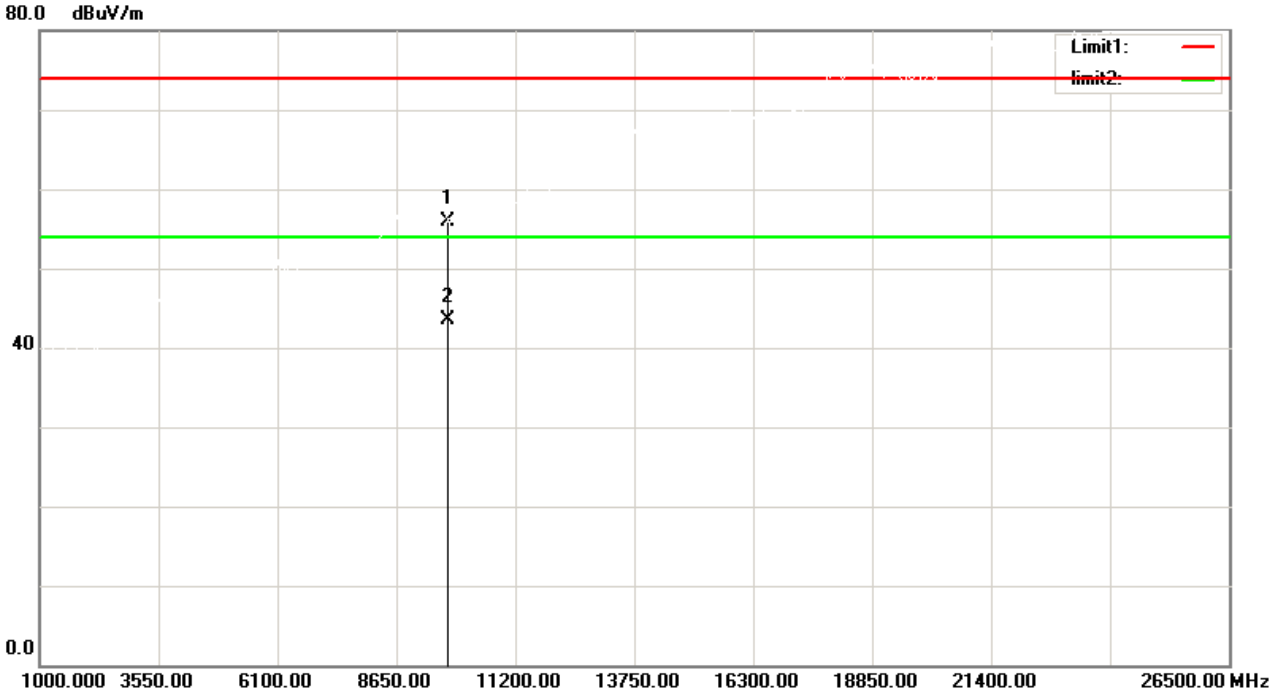
Horizontal



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		9608.000	42.57	14.88	57.45	74.00	-16.55	peak	150	236	
2	*	9608.000	31.37	14.88	46.25	54.00	-7.75	AVG	150	236	

Test Mode:	TX 2440 MHz_CH19_2Mbps

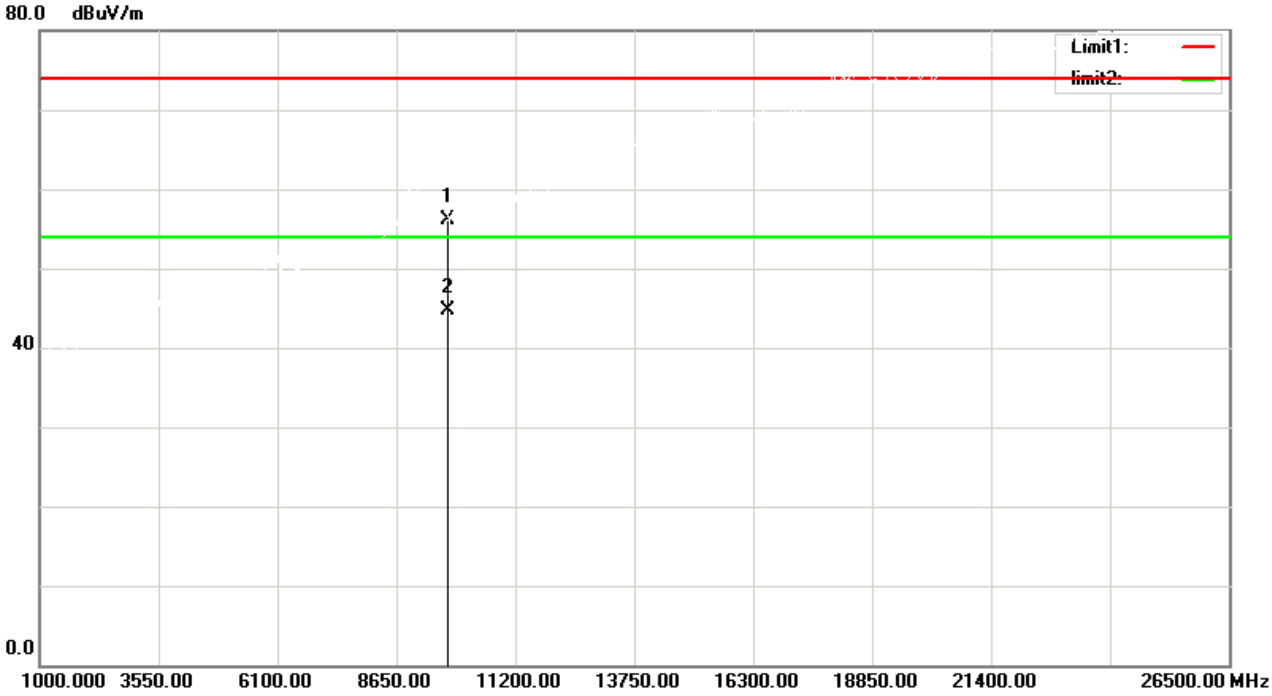
Vertical



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		9760.000	41.81	14.09	55.90	74.00	-18.10	peak	150	88	
2	*	9760.000	29.49	14.09	43.58	54.00	-10.42	AVG	150	88	

Test Mode:	TX 2440 MHz_CH19_2Mbps

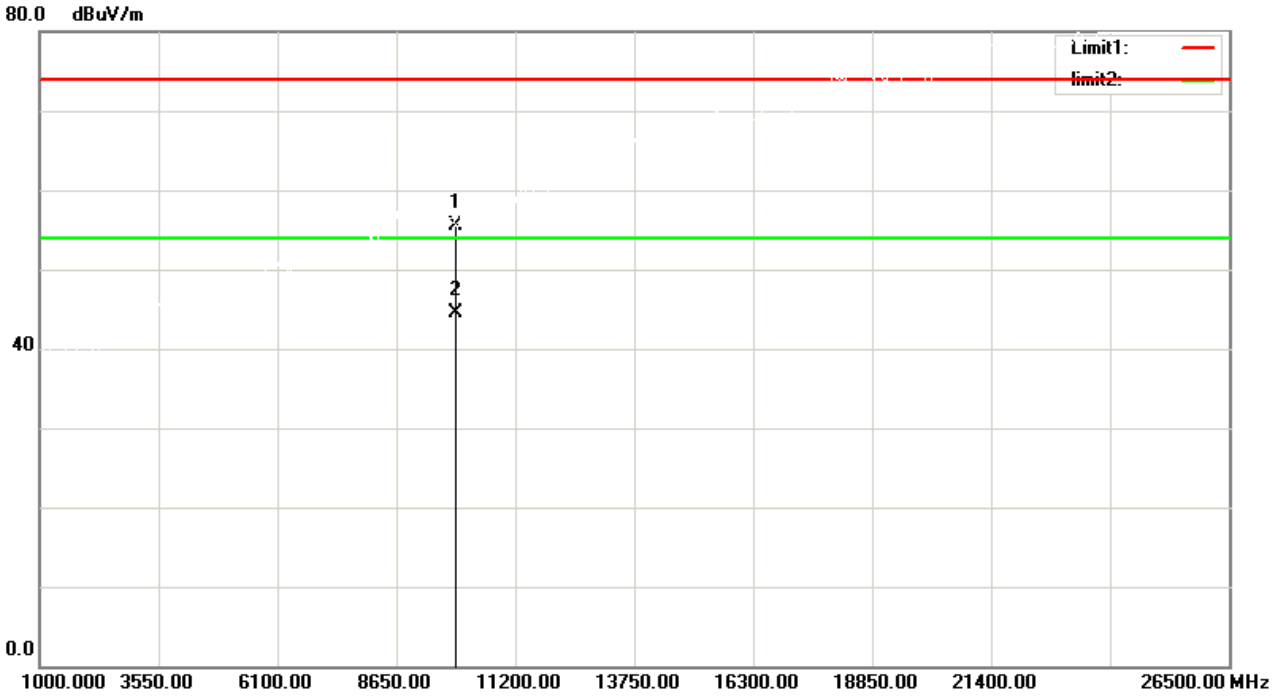
Horizontal



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		9760.000	42.02	14.09	56.11	74.00	-17.89	peak	150	41	
2	*	9760.000	30.67	14.09	44.76	54.00	-9.24	AVG	150	41	

Test Mode:	TX 2480 MHz_CH39_2Mbps

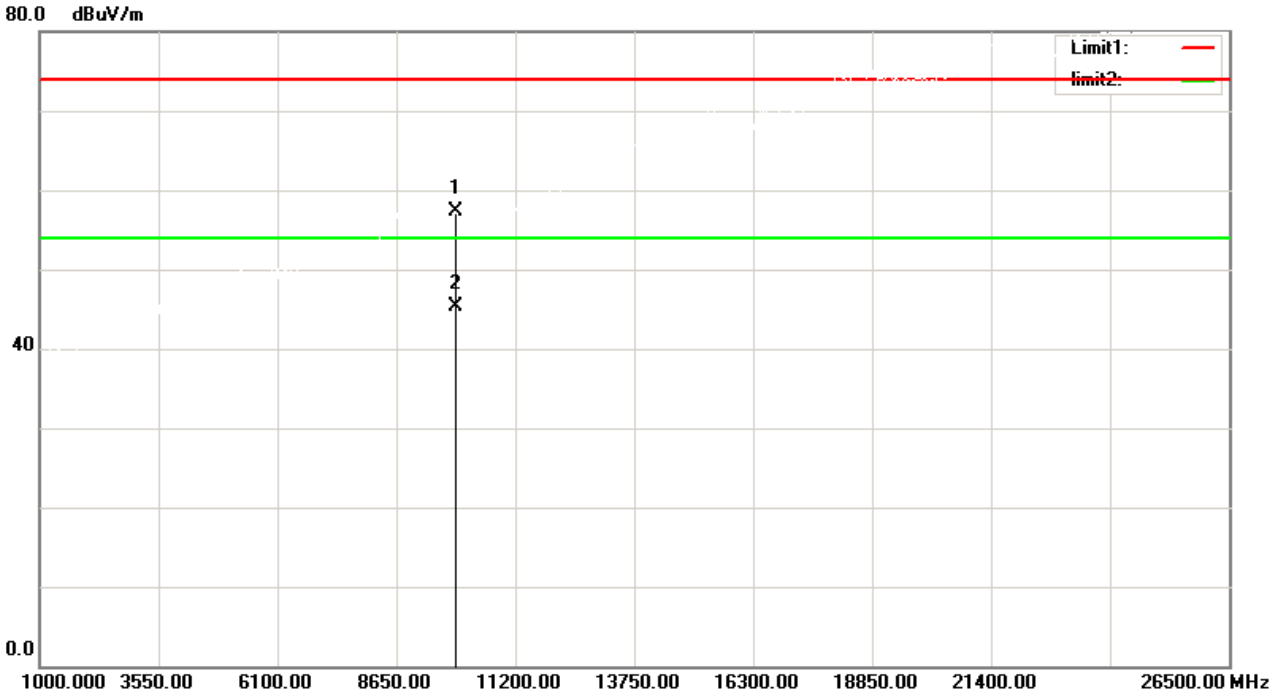
Vertical



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		9920.000	42.25	13.33	55.58	74.00	-18.42	peak	150	96	
2	*	9920.000	31.24	13.33	44.57	54.00	-9.43	AVG	150	96	

Test Mode:	TX 2480 MHz_CH39_2Mbps

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		9920.000	44.07	13.33	57.40	74.00	-16.60	peak	150	21	
2	*	9920.000	31.96	13.33	45.29	54.00	-8.71	AVG	150	21	

6 BANDWIDTH TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247)& RSS-Gen/ RSS-247		
Section	Test Item	Limit
15.247(a)(2) RSS-Gen6.7 RSS-247 5.2 (a)	Bandwidth	>= 500 kHz (6dB bandwidth)

6.2 TEST PROCEDURE AND SETTING

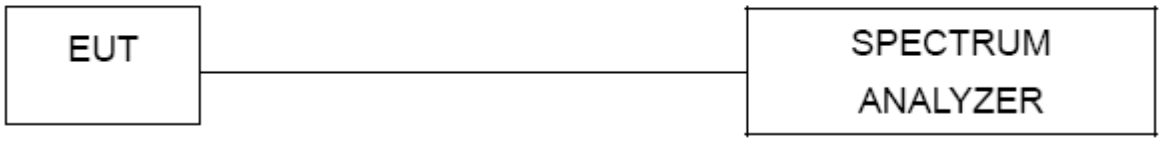
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting:
For 6dB Bandwidth RBW= 100 kHz, VBW=300 kHz, Sweep time =Auto.
For 99% Bandwidth RBW=30kHz, VBW=100kHz, Sweep time =Auto for 1Mbps.
RBW=100kHz, VBW=300kHz, Sweep time =Auto for 2Mbps.

6.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2025/05/22
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

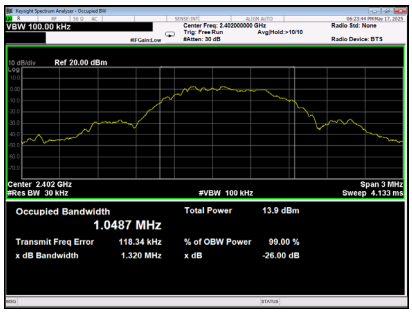
The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TESTRESULTS

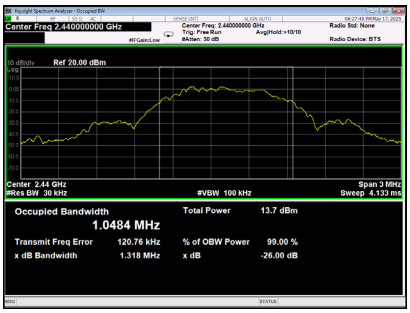
TX Mode_1Mbps				
Channel	Frequency (MHz)	6 dB bandwidth (MHz)	99%OBW (MHz)	Result
CH00	2402	0.691	1.0487	PASS
CH19	2440	0.695	1.0484	PASS
CH39	2480	0.709	1.0464	PASS

99%

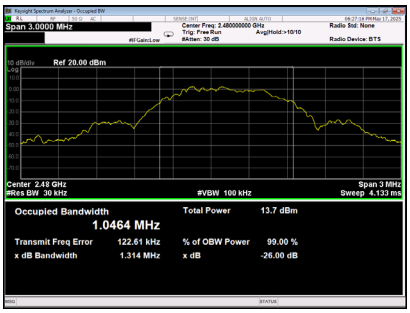
2402MHz



2440MHz

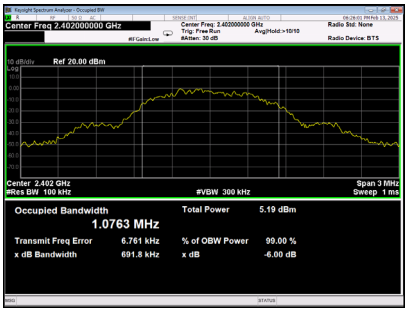


2480MHz

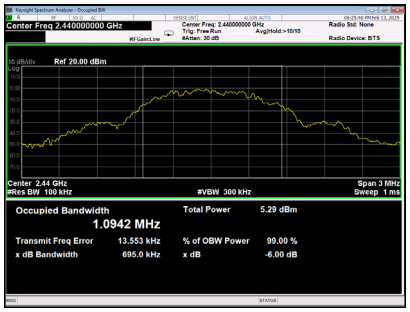


6dB

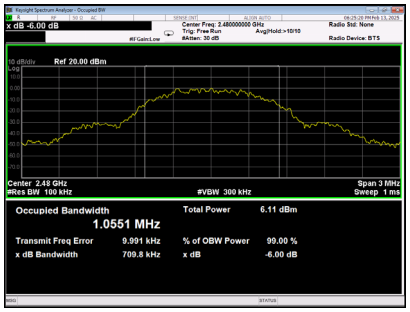
2402MHz



2440MHz

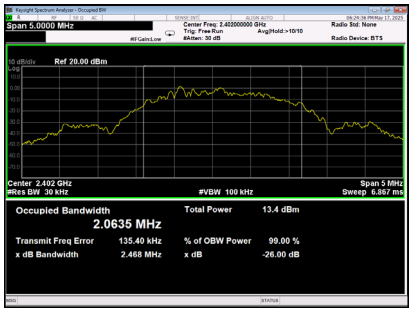


2480MHz

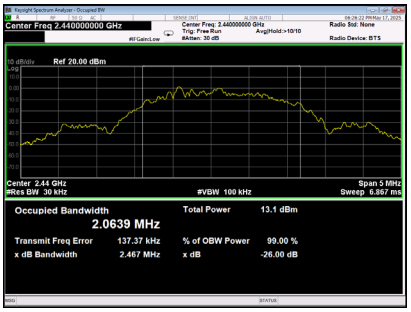


TX Mode_2Mbps				
Channel	Frequency (MHz)	6 dB bandwidth (MHz)	99%OBW (MHz)	Result
CH00	2402	1.349	2.0635	PASS
CH19	2440	0.858	2.0639	PASS
CH39	2480	0.702	2.0608	PASS

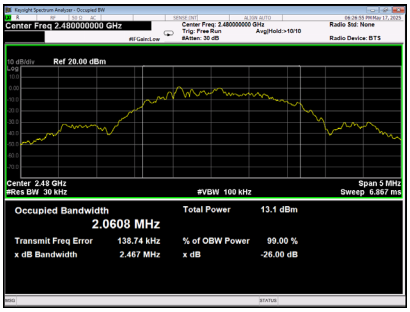
2402MHz



2440MHz

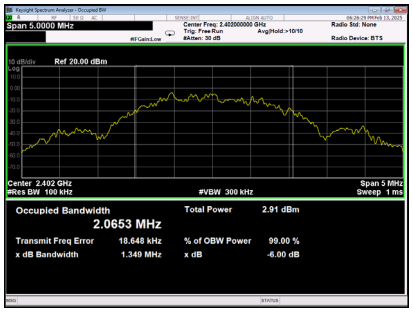


2480MHz

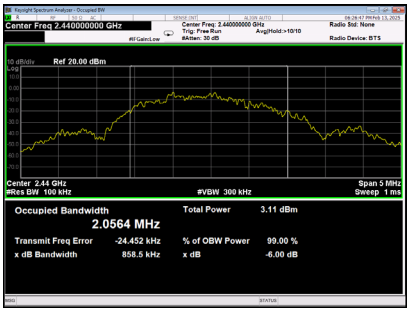


6dB

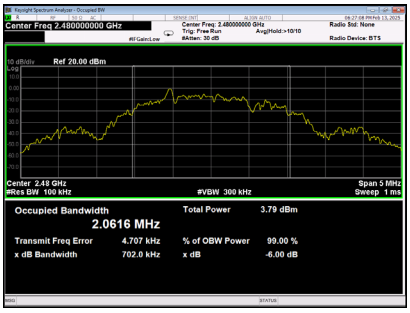
2402MHz



2440MHz



2480MHz



7. MAXIMUM OUTPUT POWER

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

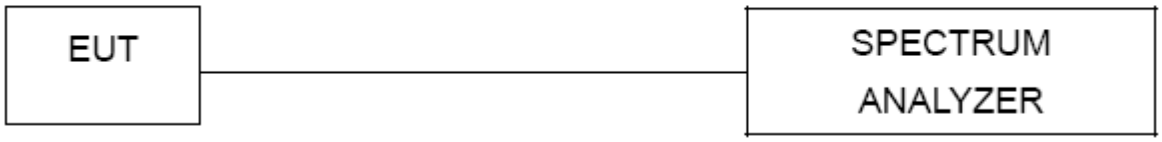
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The maximum conducted output power was performed in accordance with method 11.9.1.3(for peak power)ofANSI C63.10-2013.

7.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2025/05/22
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

7.4 TEST SETUP



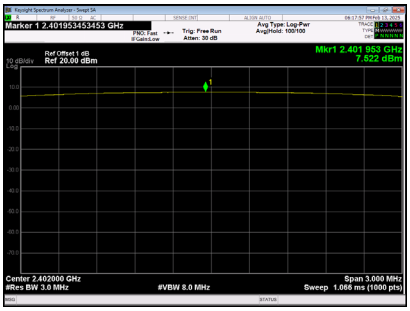
7.5 EUT OPERATION CONDITIONS

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.

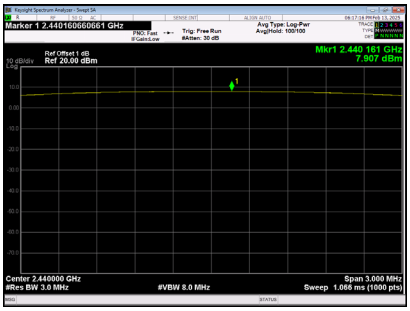
7.6 TESTRESULTS

TX Mode_1Mbps						
Gain	1dBi					
Channel	Frequency	Output Power	EIRP		Limit	Verdict
	(MHz)	(dBm)	(dBm)	(W)	(W)	
CH00	2402	7.522	8.522	0.007115	0.125	PASS
CH19	2440	7.907	8.907	0.007775	0.125	PASS
CH39	2480	8.100	9.100	0.008128	0.125	PASS

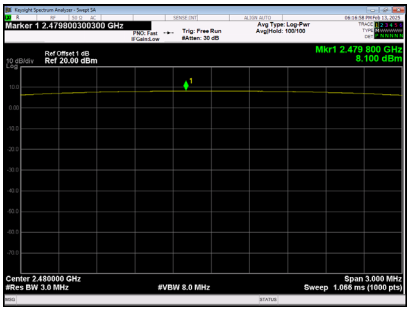
2402MHz



2440MHz

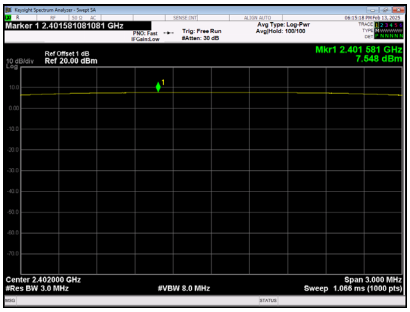


2480MHz

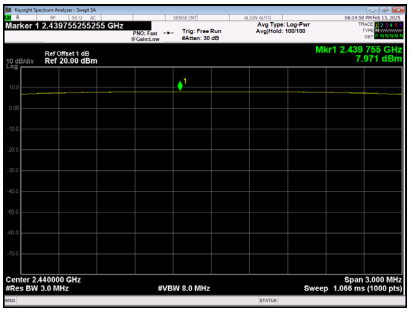


TX Mode_2Mbps						
Gain	1dBi					
Channel	Frequency	Output Power	EIRP		Limit	Verdict
	(MHz)	(dBm)	(dBm)	(W)	(W)	
CH00	2402	7.548	8.548	0.007158	0.125	PASS
CH19	2440	7.971	8.971	0.007890	0.125	PASS
CH39	2480	8.126	9.126	0.008177	0.125	PASS

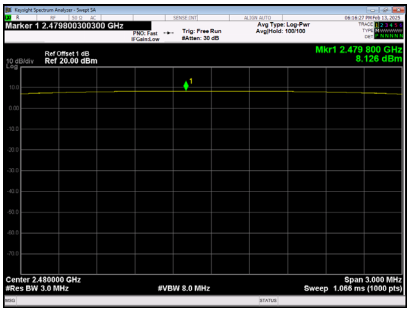
2402MHz



2440MHz



2480MHz



8 CONDUCTED SPURIOUS EMISSION

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

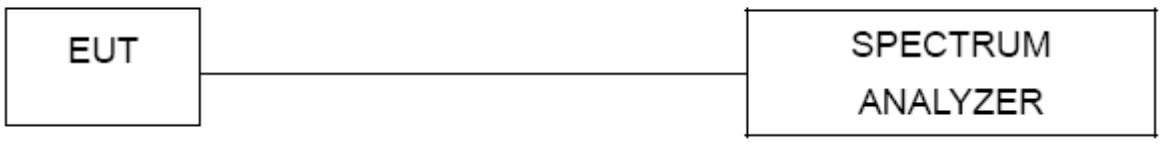
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

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	2025/05/22
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



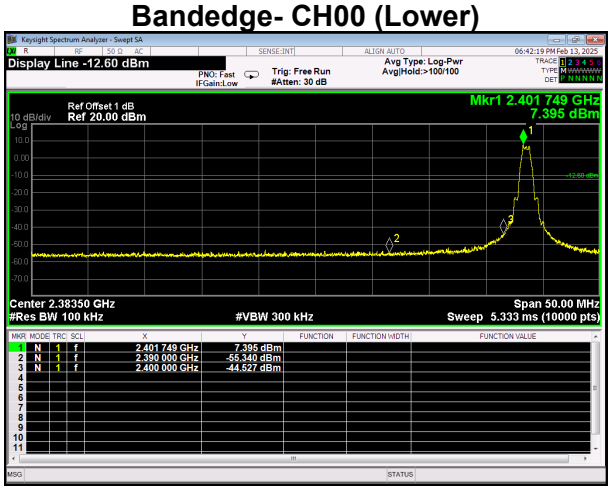
8.5 EUT OPERATION CONDITIONS

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.

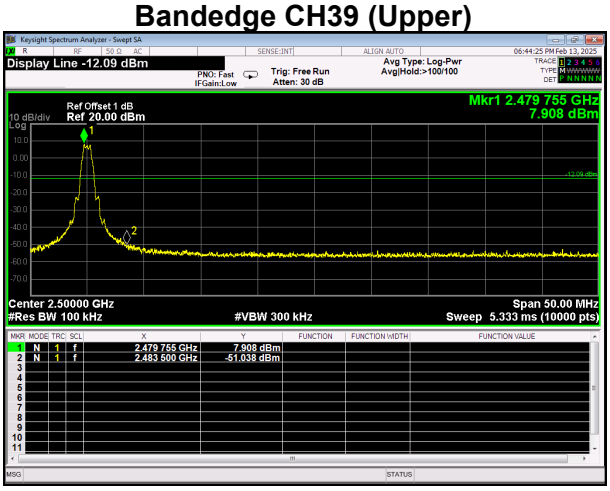
8.6 TEST RESULTS

TX Mode_1Mbps

Bandedge- CH00 (Lower)

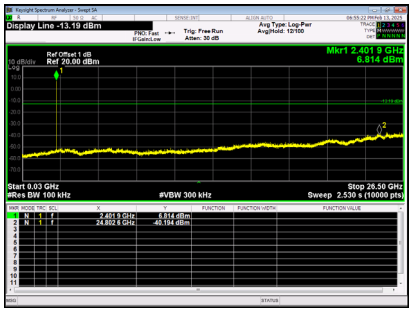


Bandedge CH39 (Upper)

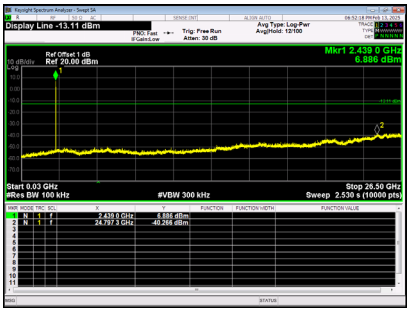


CH00 – 10th Harmonic of the fundamental frequency

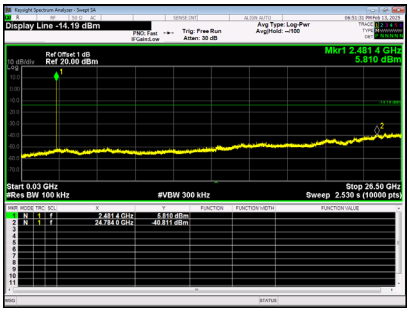
2402MHz



2440MHz

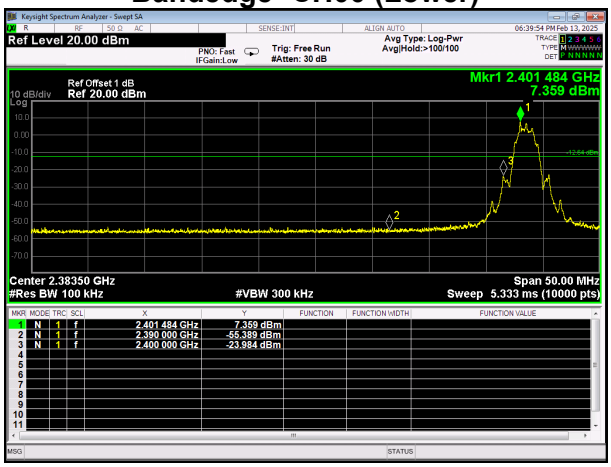


2480MHz

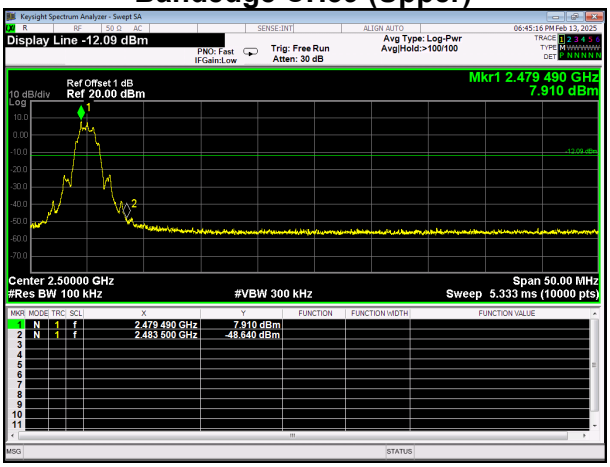


TX Mode_2Mbps

Bandedge- CH00 (Lower)

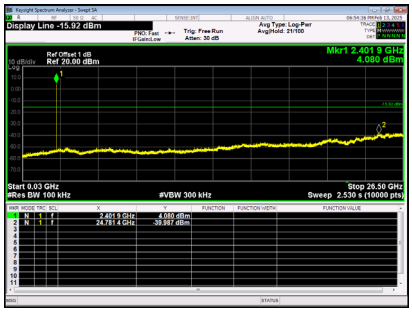


Bandedge CH39 (Upper)

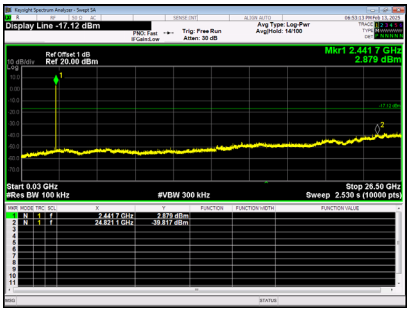


CH00 – 10th Harmonic of the fundamental frequency

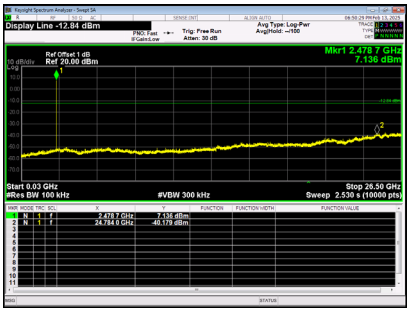
2402MHz



2440MHz



2480MHz



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)

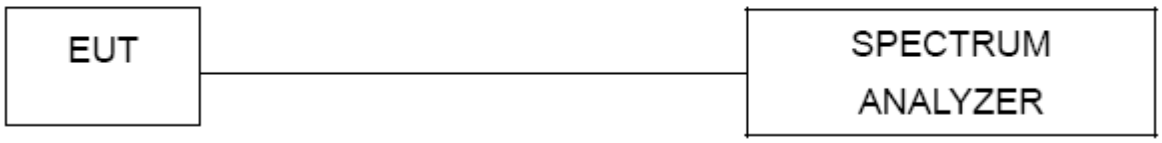
9.2 TEST PROCEDURE

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=10kHz, Sweep time = auto.

9.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2025/05/22
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



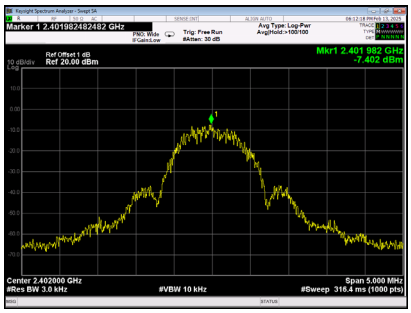
9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

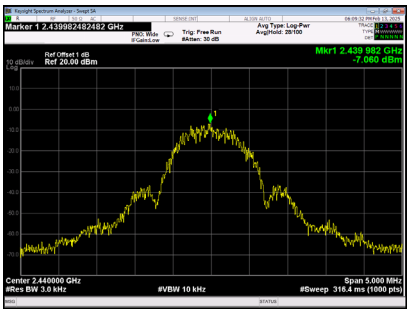
9.6 TEST RESULTS

TX Mode_1Mbps				
Channel	Frequency (MHz)	Power SpectralDensity (dBm/3 kHz)	Limit: <dBm/3kHz	Result
CH00	2402	-7.402	8	PASS
CH19	2440	-7.060	8	PASS
CH39	2480	-7.051	8	PASS

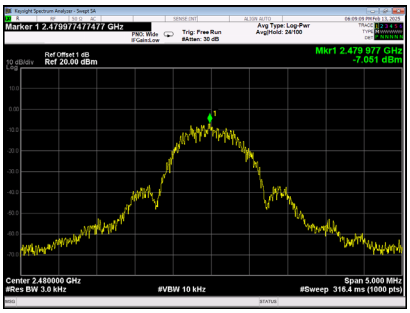
CH00



CH19

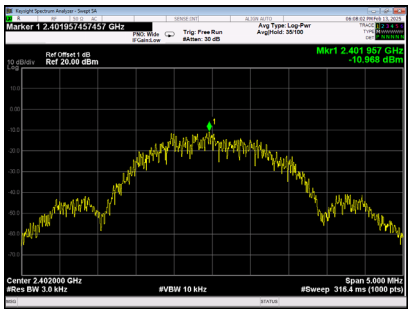


CH39

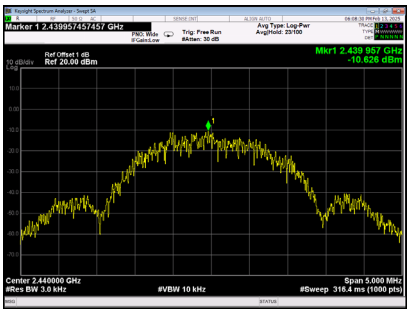


TX Mode_2Mbps				
Channel	Frequency (MHz)	Power SpectralDensity (dBm/3 kHz)	Limit: <dBm/3kHz	Result
CH00	2402	-10.968	8	PASS
CH19	2440	-10.626	8	PASS
CH39	2480	-10.632	8	PASS

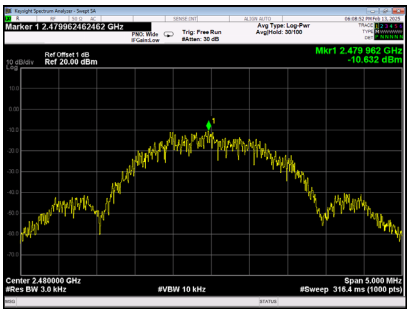
CH00



CH19



CH39



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	2402-2480

10.2 TEST PROCEDURE

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

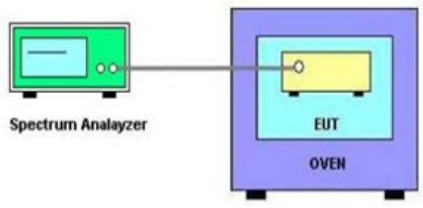
b. Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulationemissionsbandwidth
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	2025/05/22
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)
5Vdc	(℃)	2480
	-20	2479.9996
	+20	2479.9997
	+50	2479.9997
4.1Vdc	+20	2479.9996
Max. Deviation (MHz)		-0.0004
Max. Deviation (ppm)		-0.16

Note: 4.1Vdc is the end point voltage, and products below 4.1Vdc will cease working.

END OF TEST REPORT