

FCC & ISED Radio Test Report

FCC ID: XGB-CWAA0063**IC: 3879A-CWAA0063****The report concerns: Original Grant**

Report Reference No.....: 26EFSB07004 04351
Date Sample(s) Received.....: 2026-07-07
Date of Tested.....: From 2026-07-23 to 2026-08-05
Date of issue.....: 2026-08-14
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: Voyetra Turtle Beach, Inc.
Address: 15822 Bernardo Center Drive, Suite 105, San Diego,
CA 92127, USA

Equipment.....: Wireless Dongle
Trade Mark: N/A
Model: CWAA0063
Ratings: I/P: 5VDC

Test Engineer:

Jelena OuYang

Responsible Engineer :

Leo Chen

Authorized Signatory:

Smile Wang

Table of Contents	Page
1 TEST REPORT DECLARE	4
2 SUMMARY OF TEST RESULTS	5
2.1 MEASUREMENT UNCERTAINTY	6
3 GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	9
3.3 PARAMETERS OF TEST SOFTWARE	9
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
3.5 SUPPORT UNITS	10
3.6 TEST ENVIRONMENT CONDITIONS	10
4 AC POWER LINE CONDUCTED EMISSIONS TEST	11
4.1 LIMIT	11
4.2 TEST PROCEDURE	11
4.3 MEASUREMENT INSTRUMENTS LIST	11
4.4 TEST SETUP	12
4.5 EUT OPERATING CONDITIONS	12
4.6 TEST RESULTS	13
5 RADIATED EMISSION TEST	15
5.1 LIMIT	15
5.2 TEST PROCEDURE	16
5.3 MEASUREMENT INSTRUMENTS LIST	17
5.4 TEST SETUP	17
5.5 EUT OPERATING CONDITIONS	18
5.6 TEST RESULT- 9KHZ TO 30MHZ	19
5.7 TEST RESULT- 30MHZ TO 1000MHZ	20
5.8 TEST RESULT- ABOVE 1000MHZ (BAND EDGE)	22
5.9 TEST RESULTS - ABOVE 1000MHZ (HARMONIC)	26
6 BANDWIDTH TEST	32
6.1 LIMIT	32
6.2 TEST PROCEDURE AND SETTING	32
6.3 MEASUREMENT INSTRUMENTS LIST	32
6.4 TEST SETUP	32
6.5 EUT OPERATION CONDITIONS	32

Table of Contents	Page
6.6 TEST RESULTS	33
7 MAXIMUM OUTPUT POWER	34
7.1 LIMIT	34
7.2 TEST PROCEDURE	34
7.3 MEASUREMENT INSTRUMENTS LIST	34
7.4 TEST SETUP	34
7.5 EUT OPERATION CONDITIONS	34
7.6 TEST RESULTS	35
8 CONDUCTED SPURIOUS EMISSION	36
8.1 LIMIT	36
8.2 TEST PROCEDURE	36
8.3 MEASUREMENT INSTRUMENTS LIST	36
8.4 TEST SETUP	36
8.5 EUT OPERATION CONDITIONS	36
8.6 TEST RESULTS	37
9 POWER SPECTRAL DENSITY TEST	40
9.1 LIMIT	40
9.2 TEST PROCEDURE	40
9.3 MEASUREMENT INSTRUMENTS LIST	40
9.4 TEST SETUP	40
9.5 EUT OPERATION CONDITIONS	40
9.6 TEST RESULTS	41
10 FREQUENCY STABILITY MEASUREMENT	42
10.1 LIMIT	42
10.2 TEST PROCEDURE	42
10.3 MEASUREMENT INSTRUMENTS LIST	42
10.4 TEST SETUP	42
10.5 EUT OPERATION CONDITIONS	42
10.6 TEST RESULTS	43

1 TEST REPORT DECLARE

Applicant for FCC	Voyetra Turtle Beach, Inc.
Address for FCC	15822 Bernardo Center Drive, Suite 105, San Diego, CA 92127, USA
Manufacturer	Voyetra Turtle Beach, Inc.
Address	15822 Bernardo Center Drive, Suite 105, San Diego, CA 92127, USA
Equipment	Wireless Dongle
Model No.	CWAA0063
Trade Mark	N/A
Standard	FCC Part15, Subpart C (15.247) RSS-247 Issue 4 July 2025 RSS-Gen Issue 6 July 2026 ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 +Errata to C63.10a-2024

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-Gen 7.4.2	AC Power Line Conducted Emissions	PASS	-----
15.247(d) 15.205(a) 15.209(a)	RSS-247 6.6 RSS-Gen 7.4.3 RSS-Gen 7.5	Radiated Emissions	PASS	-----
15.247(a)(2)	RSS-247 6.3.1 (a) RSS-Gen 5.1	Bandwidth	PASS	-----
15.247(b)(3)	RSS-247 6.3.2	Maximum Output Power	PASS	-----
15.247(d)	RSS-247 6.6	Conducted Spurious Emission	PASS	-----
15.247(e)	RSS-247 6.3.1 (b)	Power Spectral Density	PASS	-----
-	RSS-Gen 5.3	Frequency Stability	PASS	-----
15.203	RSS-Gen 5.2	Antenna Requirement	PASS	Note(2)

Note:

- (1) "N/A" denotes test is not applicable to this device.
- (2) For FCC, 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	$\pm 0.048\text{kHz}$
Uncertainty for conducted RF Power	$\pm 0.32\text{dB}$

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	2028-06-30
Innovation, Science and Economic Development Canada (ISED)	11033A CAB identifier: CN0083	2028-06-30
Federal Communications Commission (FCC)	171688 Designation No.: CN1235	2028-04-30

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Dongle	
Brand Name	N/A	
Test Model	CWAA0063	
Series Model	N/A	
Model Difference(s)	N/A	
Hardware Version	V1.10	
Software Version	V1.0	
Power Source	Supplied from DC	
Power Rating	I/P: 5VDC	
Operation Frequency	2402 MHz ~ 2480 MHz (1 MHz separation, 79 CH)	
Modulation Technology	GFSK	
Bit Rate of Transmitter	2Mbps	
Antenna Information	Antenna Type: Chip	Maximum Peak Gain: 0.88dBi (Provide by manufacturer)
Max. Output power	-0.101dBm (0.000977W)	
Max. EIRP	0.779dBm (0.001196W)	

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)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

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	2M TX ModeNOTE (1)
Mode 2	2M TX Mode Channel 00

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 1	2M TX Mode Channel 00

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 1	2M TX Mode Channel 00

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

Conducted test	
Final Test Mode	Description
Mode 1	2M TX ModeNOTE (1)

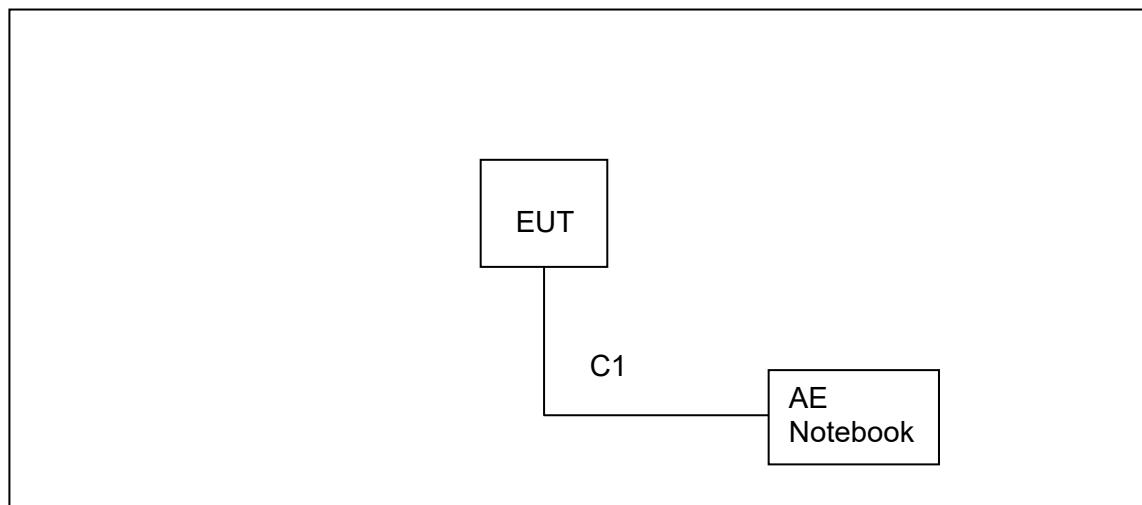
Note:

(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	Telink BDT.exe		
Frequency (MHz)	2402	2441	2480
Parameters	0db	0db	0db

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	24.8°C	66.3%	DC 5V (AC 120V/60Hz)
Radiated Emissions-9K-30MHz	24°C	50%	DC 5V
Radiated Emissions-30 MHz to 1GHz	23.8°C	52.2%	DC 5V
Radiated Emissions-Above 1000 MHz	26.1°C	63.2%	DC 5V
Bandwidth	25°C	54%	DC 5V
Maximum Output Power	25°C	54%	DC 5V
Conducted Spurious Emission	25°C	54%	DC 5V
Power Spectral Density	25°C	54%	DC 5V

4 AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

Frequency of Emission (MHz)	Limit (dB μ V)	
	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

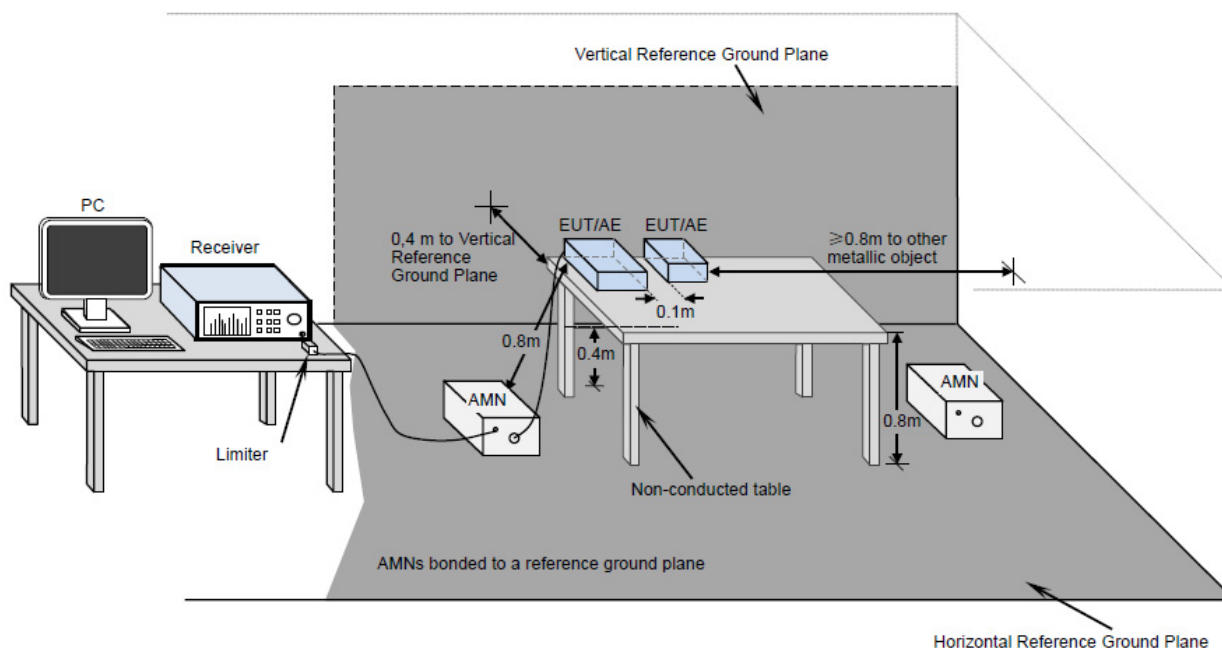
4.2 TEST PROCEDURE

- 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 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 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	11/12/2026
2	EMI Test Receiver	R&S	ESCI	101308	05/08/2027
3	LISN	AFJ	LS16	16011103219	03/24/2027
4	LISN	Schwarzbeck	NSLK8127	8127432	05/08/2027
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

4.4 TEST SETUP

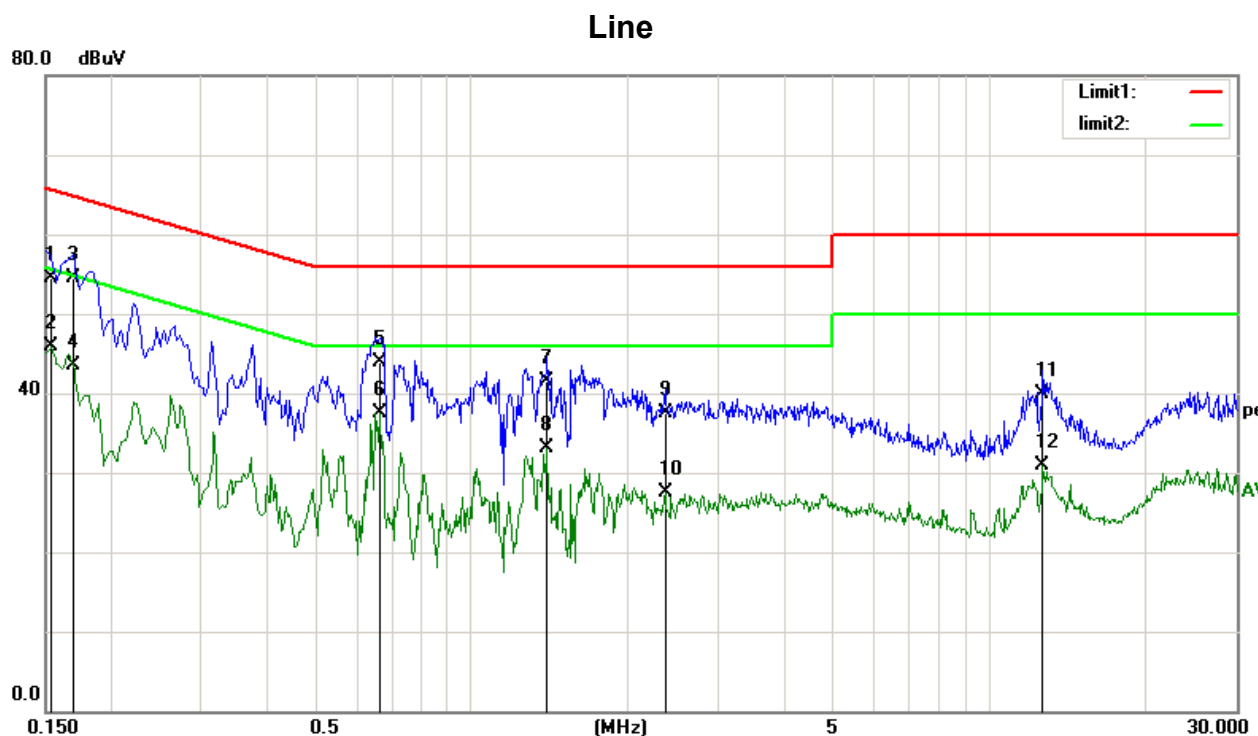


4.5 EUT OPERATING CONDITIONS

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: 2M TX Mode Channel 00



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1539	43.34	11.24	54.58	65.78	-11.20	QP
2	0.1539	34.57	11.24	45.81	55.78	-9.97	AVG
3	0.1700	43.36	11.07	54.43	64.96	-10.53	QP
4	0.1700	32.35	11.07	43.42	54.96	-11.54	AVG
5	0.6620	32.75	11.22	43.97	56.00	-12.03	QP
6	0.6620	26.29	11.22	37.51	46.00	-8.49	AVG
7	1.3976	30.32	11.12	41.44	56.00	-14.56	QP
8	1.3976	21.94	11.12	33.06	46.00	-12.94	AVG
9	2.3620	26.27	11.28	37.55	56.00	-18.45	QP
10	2.3620	16.17	11.28	27.45	46.00	-18.55	AVG
11	12.6615	28.68	11.17	39.85	60.00	-20.15	QP
12	12.6615	19.67	11.17	30.84	50.00	-19.16	AVG

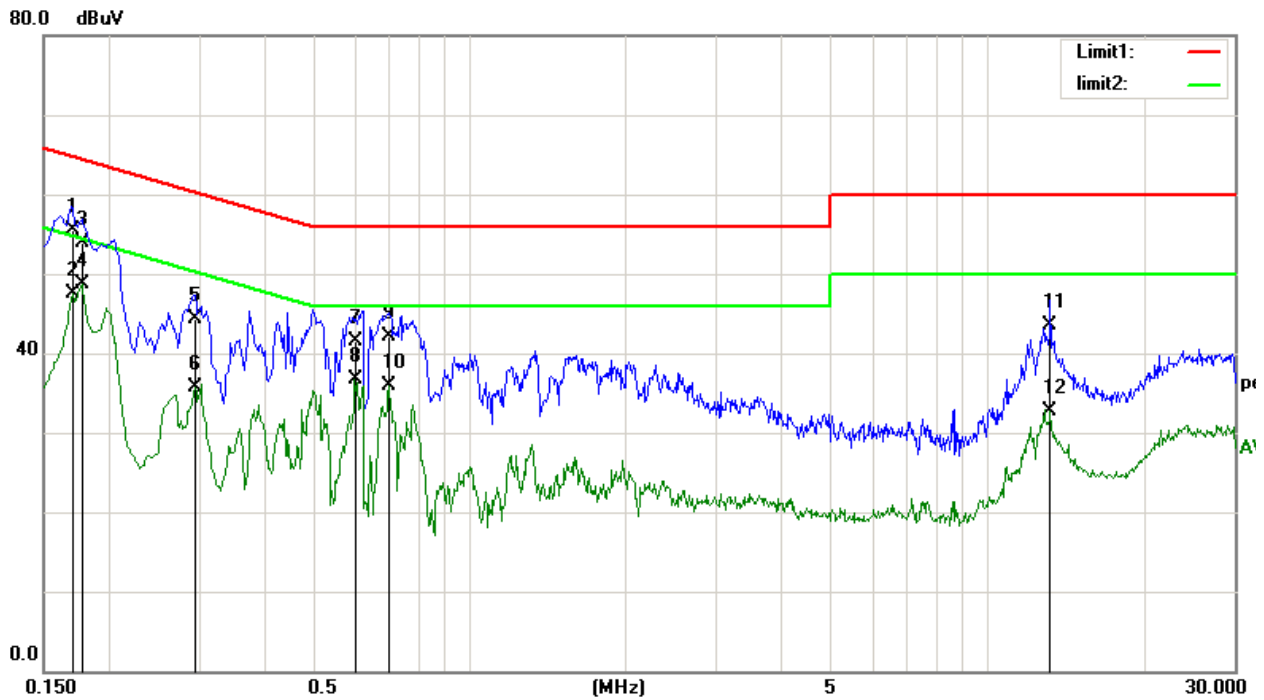
Remarks:

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

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

Test Mode: 2M TX Mode Channel 00

Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1711	44.48	11.08	55.56	64.90	-9.34	QP
2	0.1711	36.44	11.08	47.52	54.90	-7.38	AVG
3	0.1780	42.74	11.13	53.87	64.57	-10.70	QP
4	0.1780	37.63	11.13	48.76	54.57	-5.81	AVG
5	0.2940	33.44	10.92	44.36	60.41	-16.05	QP
6	0.2940	24.85	10.92	35.77	50.41	-14.64	AVG
7	0.5980	30.39	11.14	41.53	56.00	-14.47	QP
8	0.5980	25.57	11.14	36.71	46.00	-9.29	AVG
9	0.6980	30.83	11.28	42.11	56.00	-13.89	QP
10	0.6980	24.56	11.28	35.84	46.00	-10.16	AVG
11	13.2259	32.43	11.17	43.60	60.00	-16.40	QP
12	13.2259	21.46	11.17	32.63	50.00	-17.37	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 7.5, then the 15.209 (a) and RSS-Gen 7.4.3 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) (μ A/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 (μ V/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 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

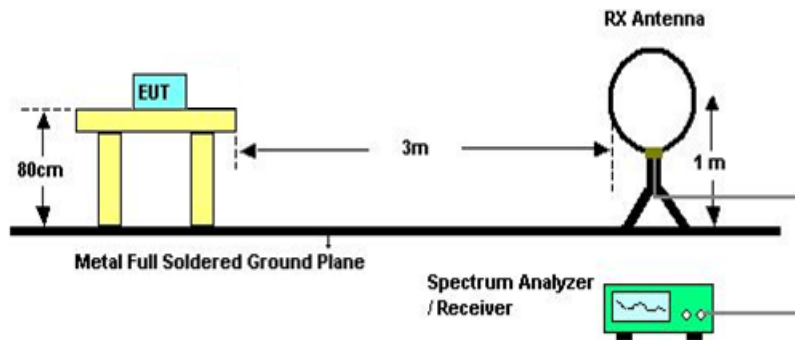
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz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

5.3 MEASUREMENT INSTRUMENTS LIST

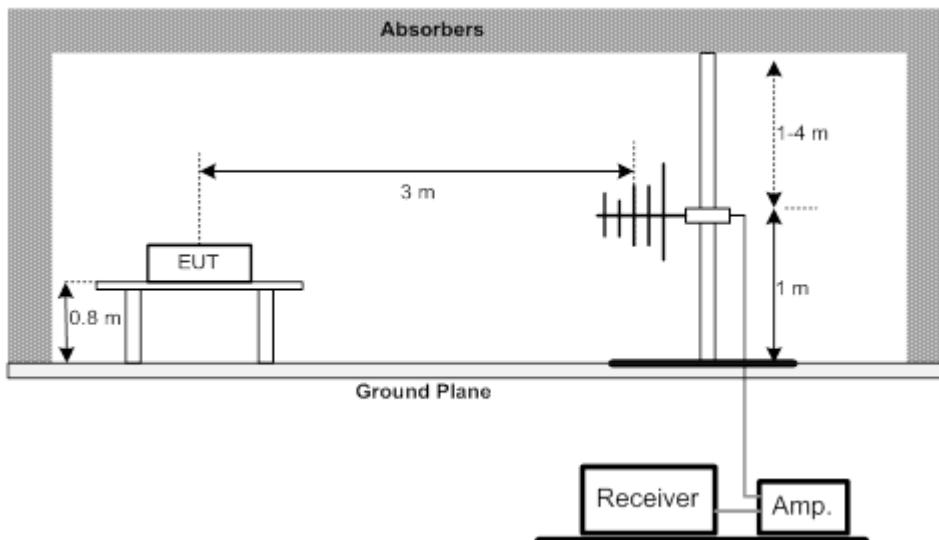
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101307	05/08/2027
2	Spectrum Analyzer	Agilent	E4407B	US40240708	11/12/2026
3	Loop antenna	SCHWARZBECK	FMZB1519	1519-062	04/01/2028
4	Broadband antenna	SCHWARZBECK	VULB9168	VULB9168-192	03/31/2028
5	Horn antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D1065	04/11/2028
6	Preamplifier Amplifier	HP	8447F	3113A05680	11/12/2026
7	Pre-Amplifier	EMEC	EM01G26G	060679	05/10/2027
8	RF Cable	N/A	Test Cable 8	8	03/19/2027
9	RF Cable	N/A	Test Cable 9	9	03/19/2027
10	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

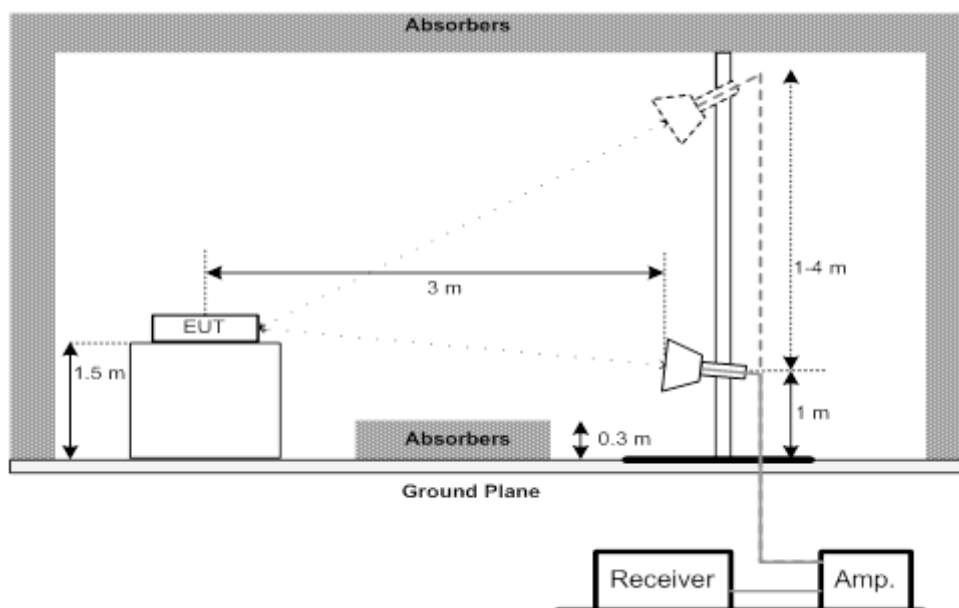
5.4 TEST SETUP

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:	2M TX Mode Channel 00
------------	-----------------------

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.

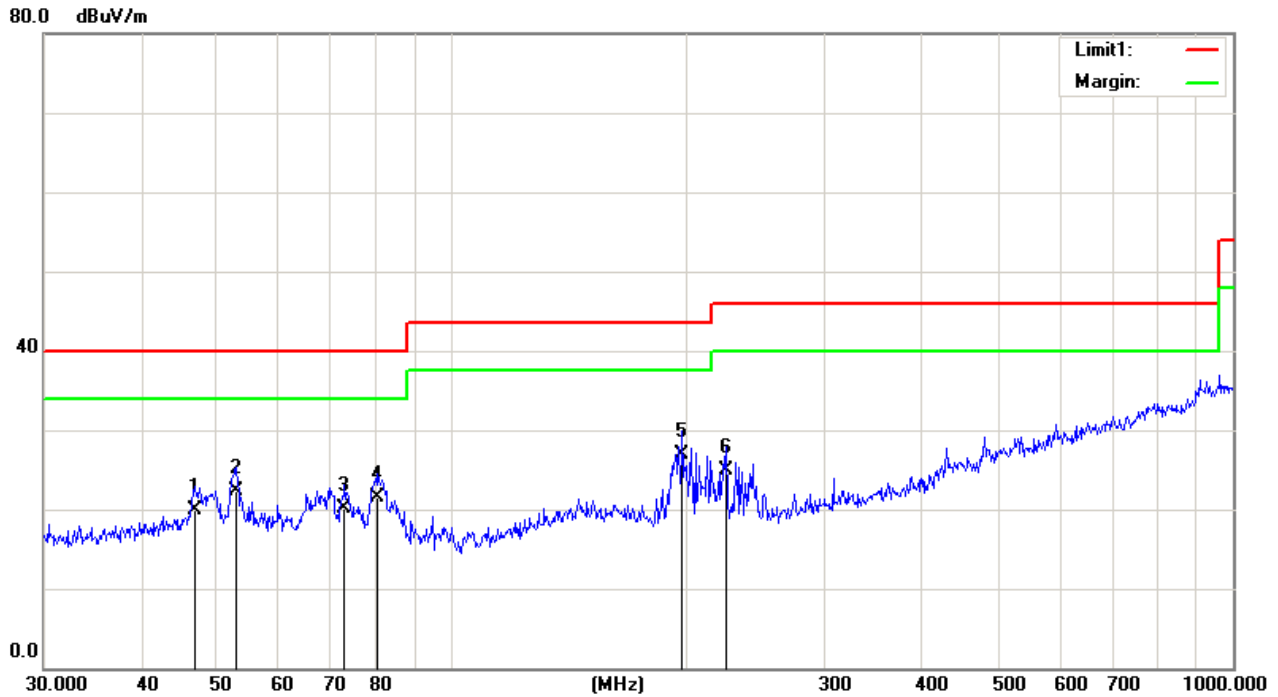
Distance extrapolation factor = $20 \log (\text{specific distance/test distance})(\text{dB})$;

Limit line = specific limits(dBuv) + distance extrapolation factor

5.7 TEST RESULT- 30MHz TO 1000MHz

Test Mode : 2M TX Mode Channel 00

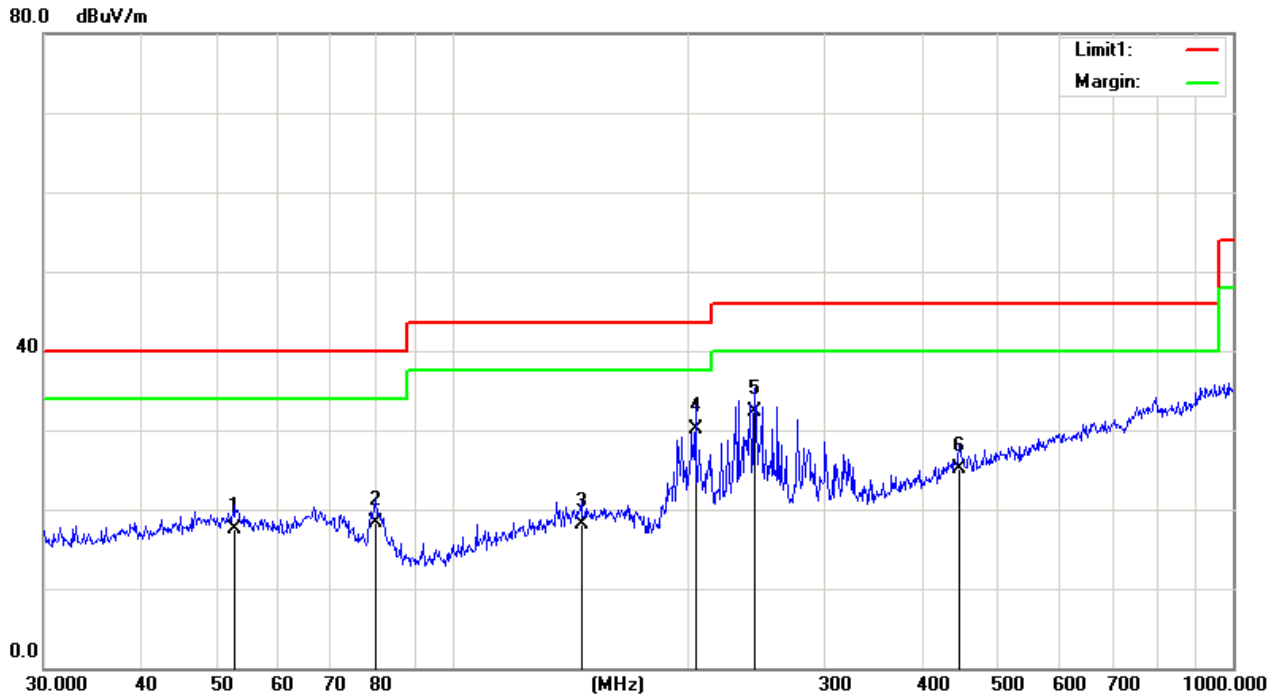
Vertical



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		46.8303	27.06	-7.14	19.92	40.00	-20.08	QP	100	198
2		52.9453	29.39	-7.11	22.28	40.00	-17.72	QP	100	121
3		72.8465	28.76	-8.71	20.05	40.00	-19.95	QP	100	165
4		80.3619	31.84	-10.33	21.51	40.00	-18.49	QP	100	145
5	*	197.2000	35.08	-8.08	27.00	43.50	-16.50	QP	100	102
6		224.5192	32.49	-7.63	24.86	46.00	-21.14	QP	100	178

Test Mode : 2M TX Mode Channel 00

Horizontal

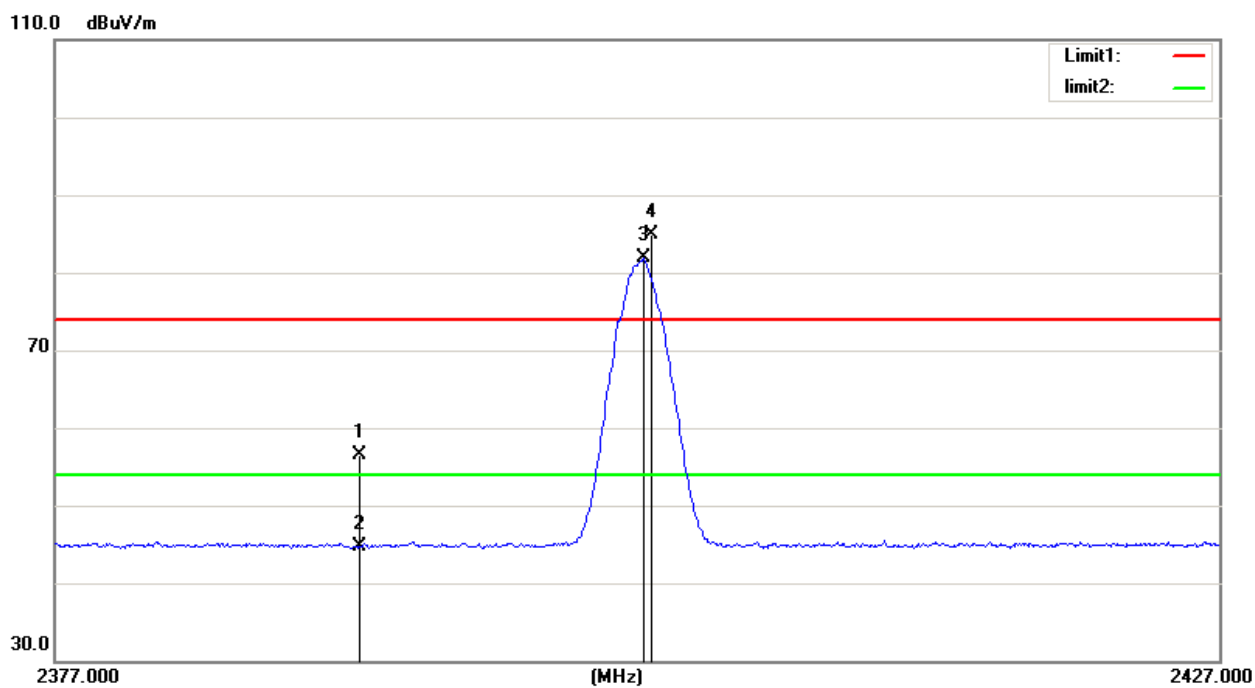


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1	52.7599	24.63	-7.11	17.52	40.00	-22.48	QP	100	122
2	79.8002	28.47	-10.22	18.25	40.00	-21.75	QP	100	76
3	146.3735	23.47	-5.41	18.06	43.50	-25.44	QP	100	49
4 *	204.9550	38.15	-7.97	30.18	43.50	-13.32	QP	100	12
5	244.2321	38.23	-5.99	32.24	46.00	-13.76	QP	100	55
6	446.4141	25.43	-0.31	25.12	46.00	-20.88	QP	100	156

5.8 TEST RESULT- ABOVE 1000MHz (BAND EDGE)

Test Mode: TX 2402 MHz_CH00_2Mbps

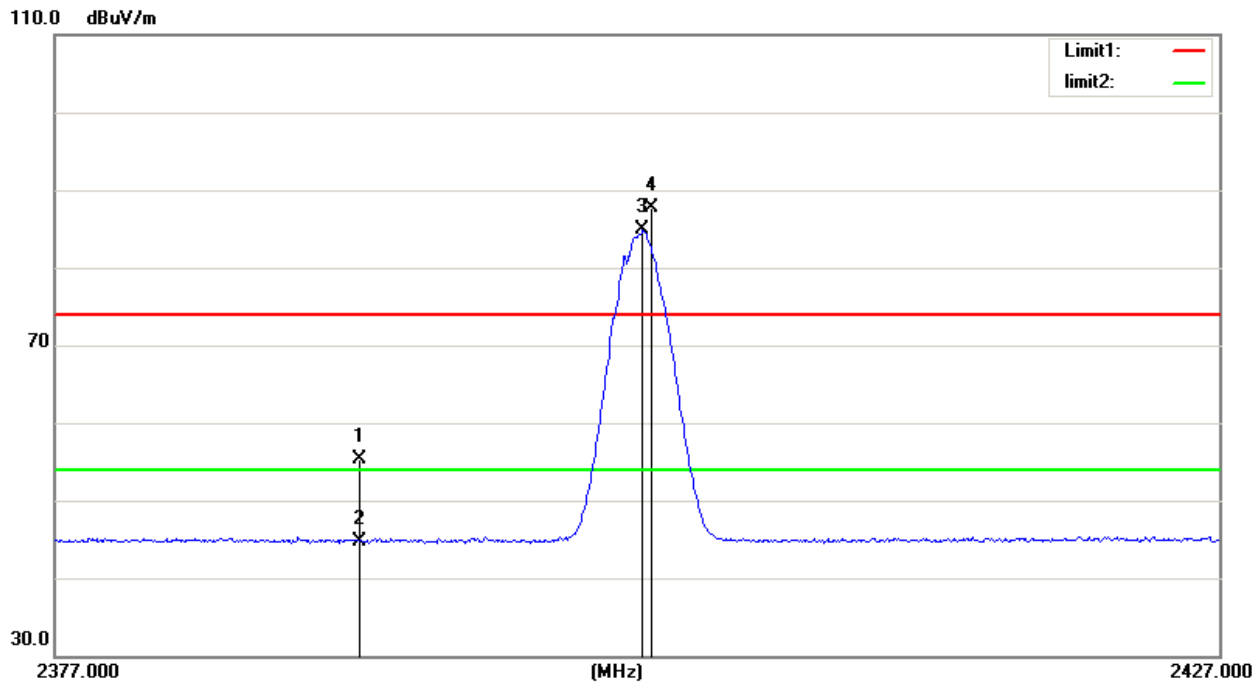
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1		2390.000	22.40	34.01	56.41	74.00	-17.59	peak	150	93
2		2390.000	10.74	34.01	44.75	54.00	-9.25	AVG	150	93
3	*	2402.200	47.81	34.00	81.81	54.00	27.81	AVG	150	93
4	X	2402.550	50.96	33.99	84.95	74.00	10.95	peak	150	93

Test Mode: TX 2402 MHz_CH00_2Mbps

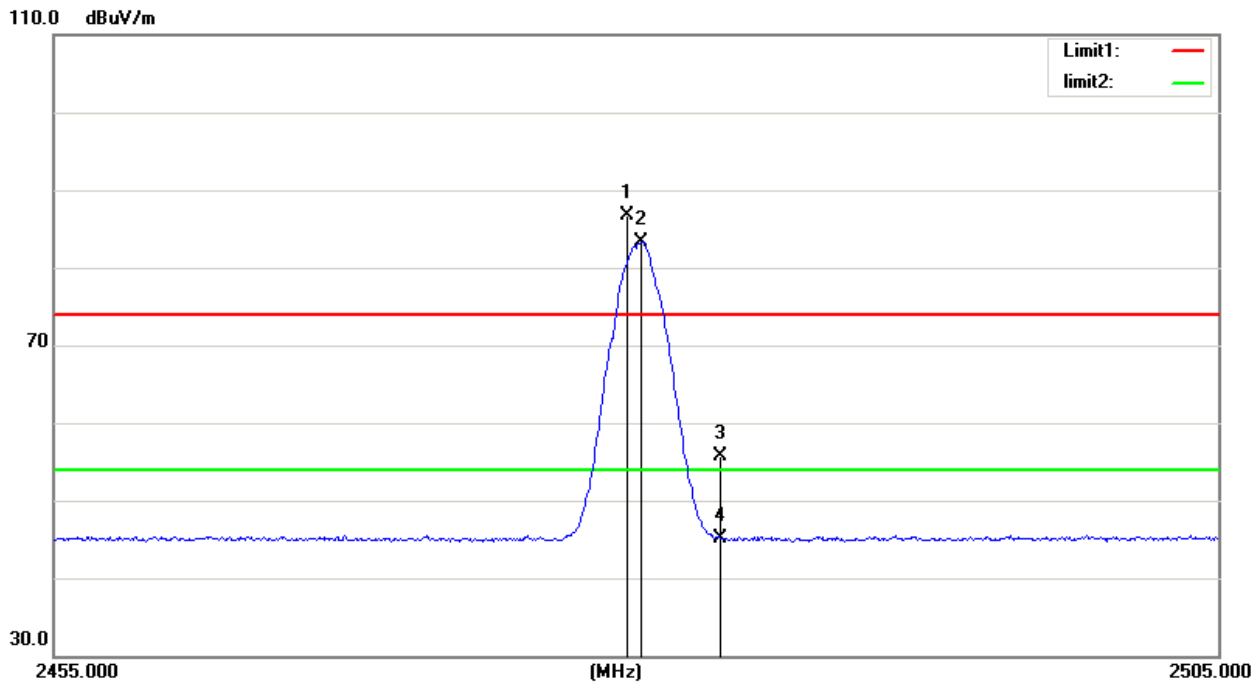
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		2390.000	21.38	34.01	55.39	74.00	-18.61	peak	150	73
2		2390.000	10.78	34.01	44.79	54.00	-9.21	AVG	150	73
3	*	2402.150	50.82	34.00	84.82	54.00	30.82	AVG	150	73 No Limit
4	X	2402.550	53.81	33.99	87.80	74.00	13.80	peak	150	73 No Limit

Test Mode: TX 2480 MHz_CH78_2Mbps

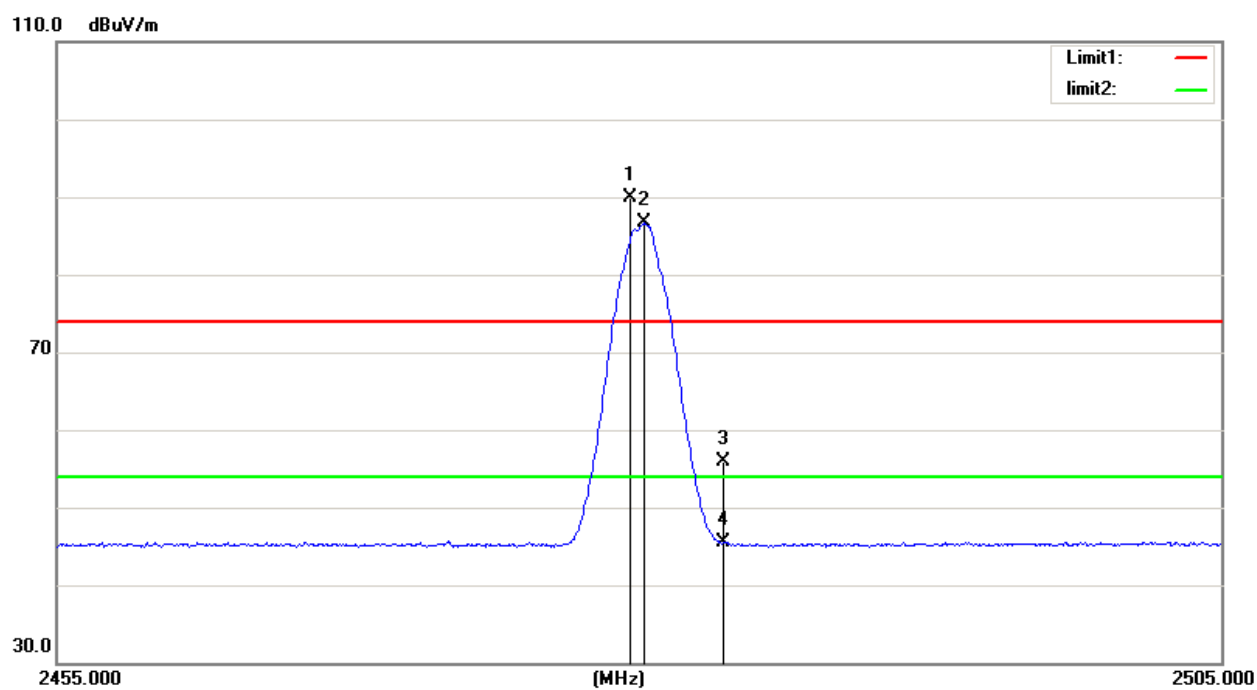
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2479.550	52.62	34.01	86.63	74.00	12.63	peak	150	70	No Limit
2	*	2480.150	49.38	34.01	83.39	54.00	29.39	AVG	150	70	No Limit
3		2483.500	21.68	34.01	55.69	74.00	-18.31	peak	150	70	
4		2483.500	11.18	34.01	45.19	54.00	-8.81	AVG	150	70	

Test Mode: TX 2480 MHz_CH78_2Mbps

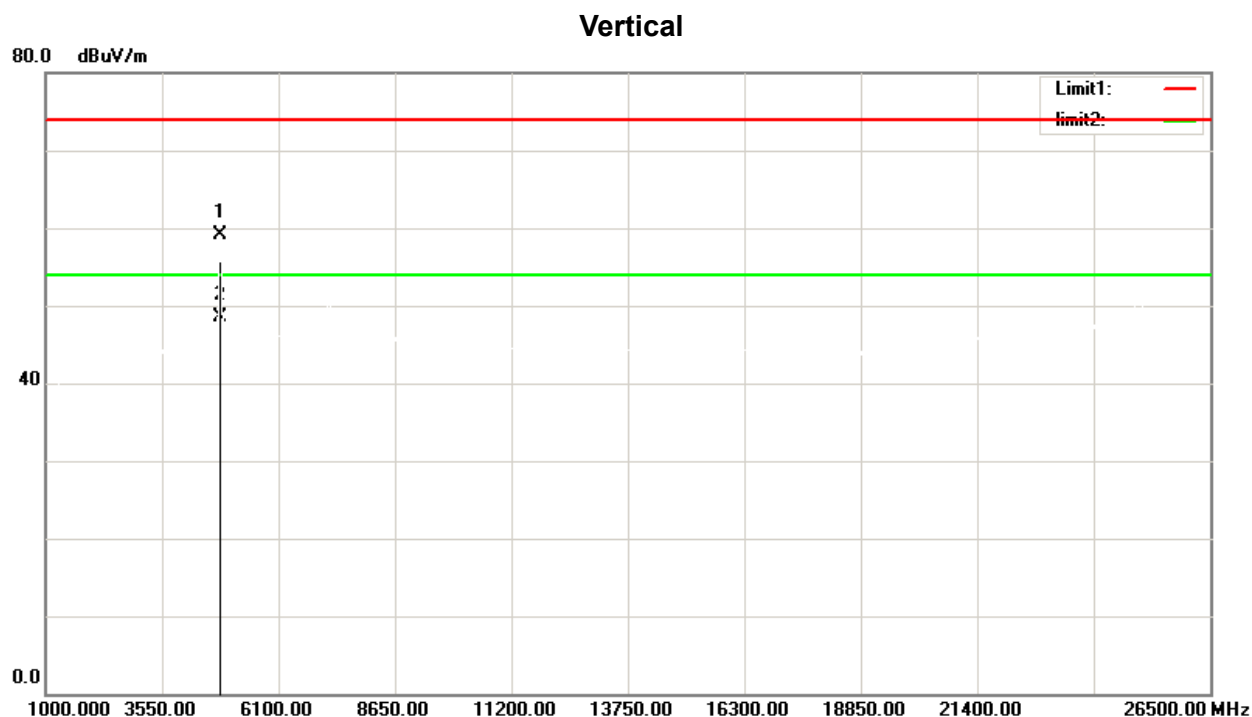
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	X	2479.550	55.81	34.01	89.82	74.00	15.82	peak	150	87	No Limit
2	*	2480.150	52.61	34.01	86.62	54.00	32.62	AVG	150	87	No Limit
3		2483.500	21.85	34.01	55.86	74.00	-18.14	peak	150	87	
4		2483.500	11.40	34.01	45.41	54.00	-8.59	AVG	150	87	

5.9 TEST RESULTS - ABOVE 1000MHz (HARMONIC)

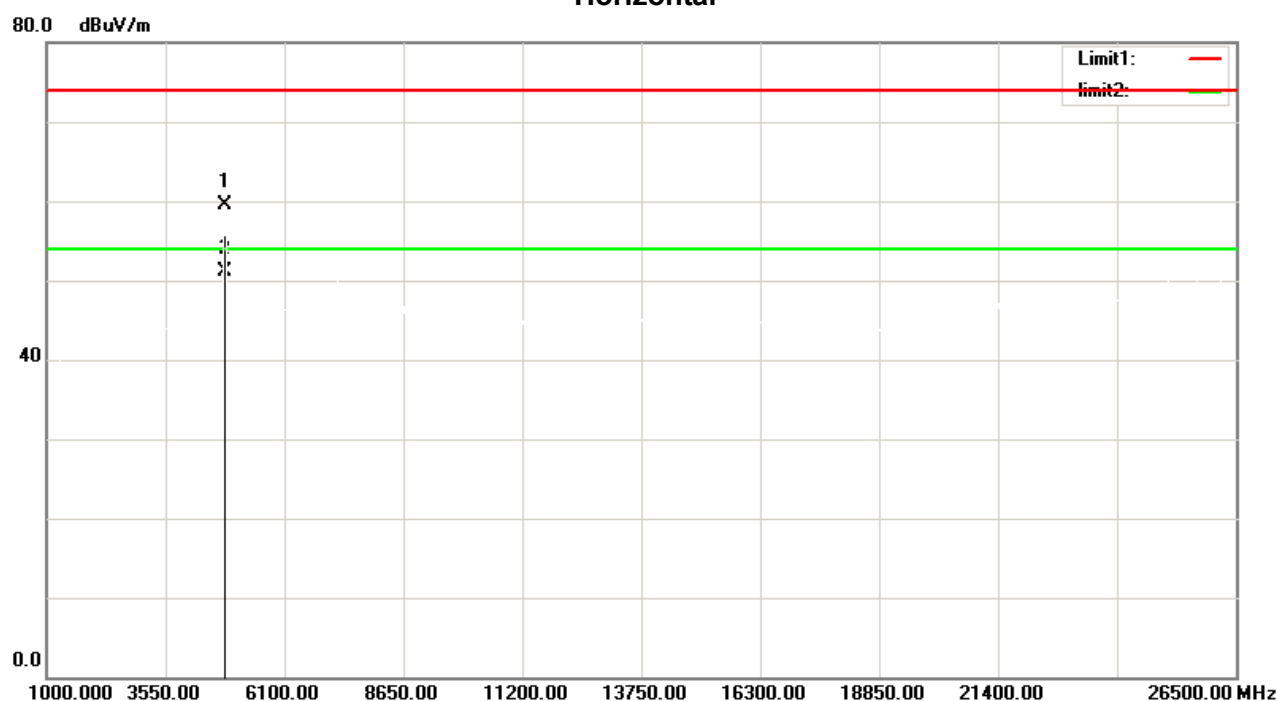
Test Mode: TX 2402 MHz_CH00_2Mbps



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		4825.000	56.91	2.25	59.16	74.00	-14.84	peak	150	62
2	*	4825.000	46.21	2.25	48.46	54.00	-5.54	AVG	150	62

Test Mode: TX 2402 MHz_CH00_2Mbps

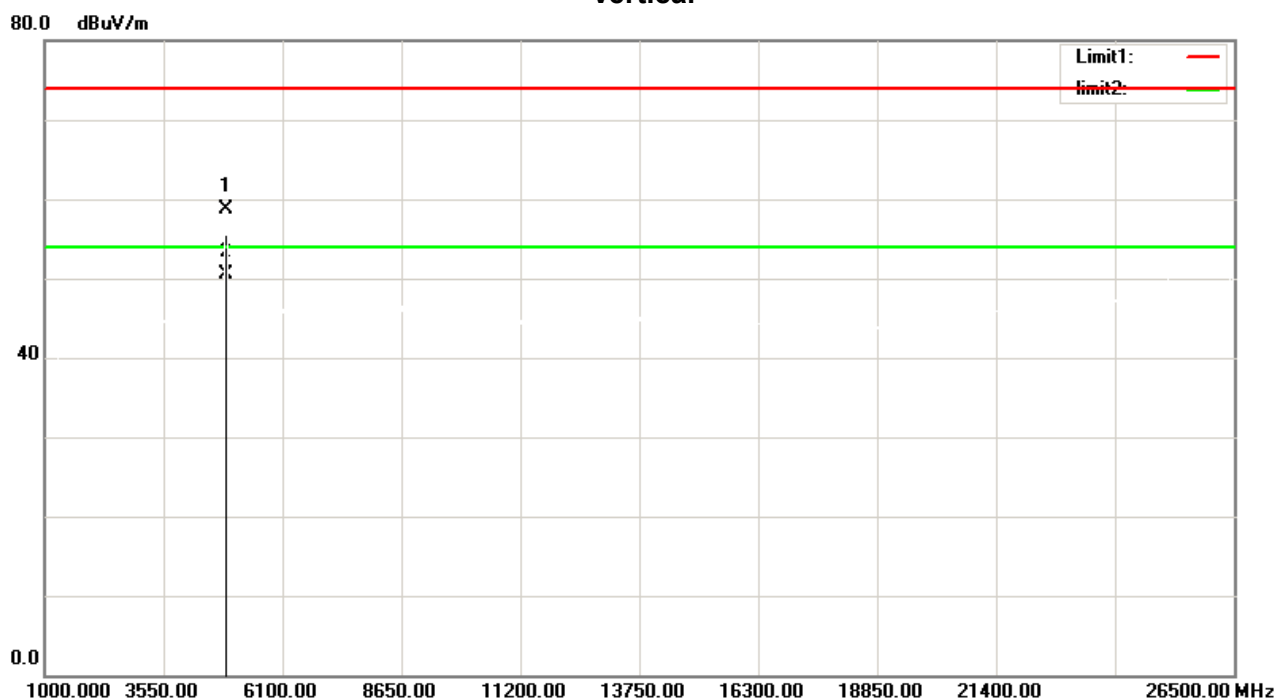
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1		4825.000	57.16	2.25	59.41	74.00	-14.59	peak	150	37
2	*	4825.000	48.86	2.25	51.11	54.00	-2.89	AVG	150	37

Test Mode: TX 2441 MHz_CH39_2Mbps

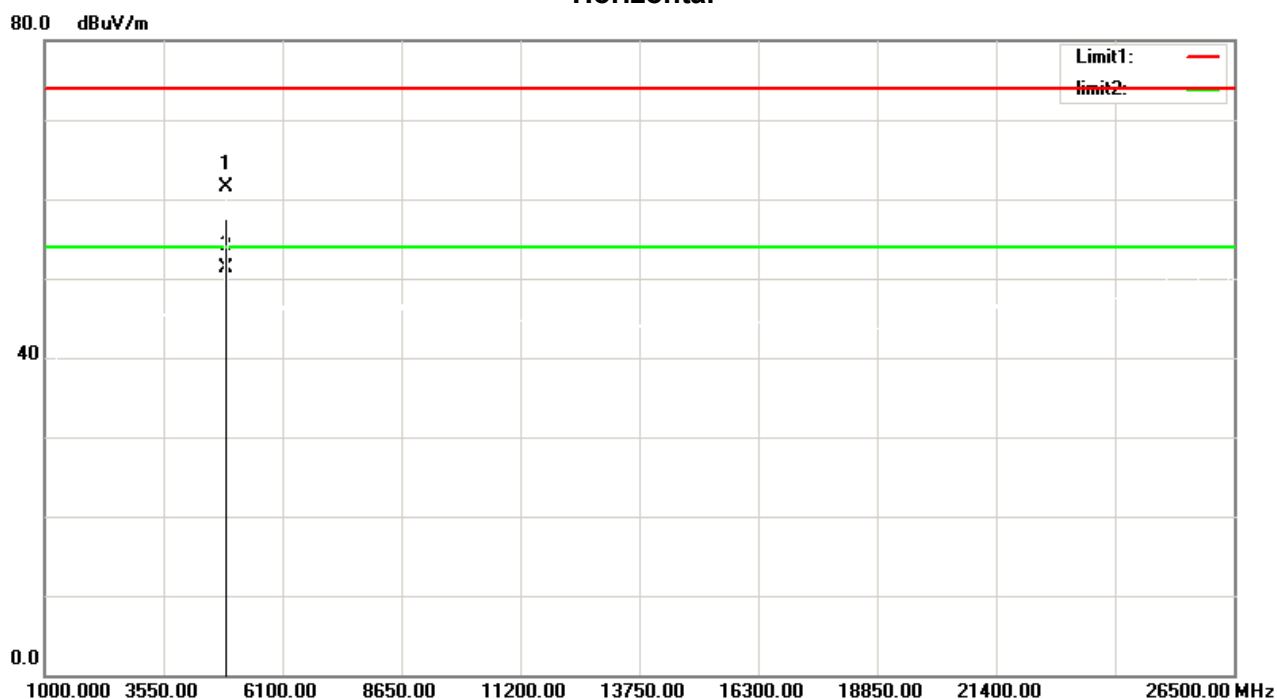
Vertical



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
1		4888.750	56.28	2.50	58.78	74.00	-15.22	peak	150	86
2	*	4888.750	48.05	2.50	50.55	54.00	-3.45	AVG	150	86

Test Mode: TX 2441 MHz_CH39_2Mbps

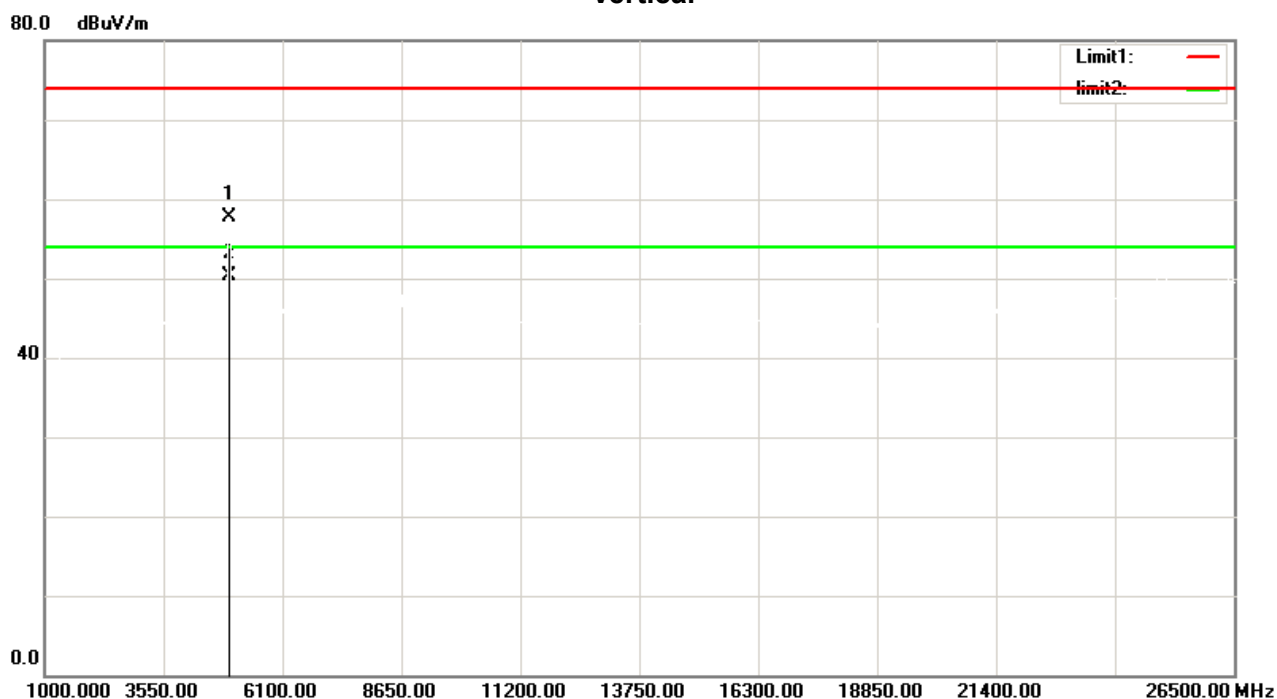
Horizontal



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
1	4888.750	59.06	2.50	61.56	74.00	-12.44	peak	150	166
2 *	4888.750	48.87	2.50	51.37	54.00	-2.63	AVG	150	166

Test Mode: TX 2480 MHz_CH78_2Mbps

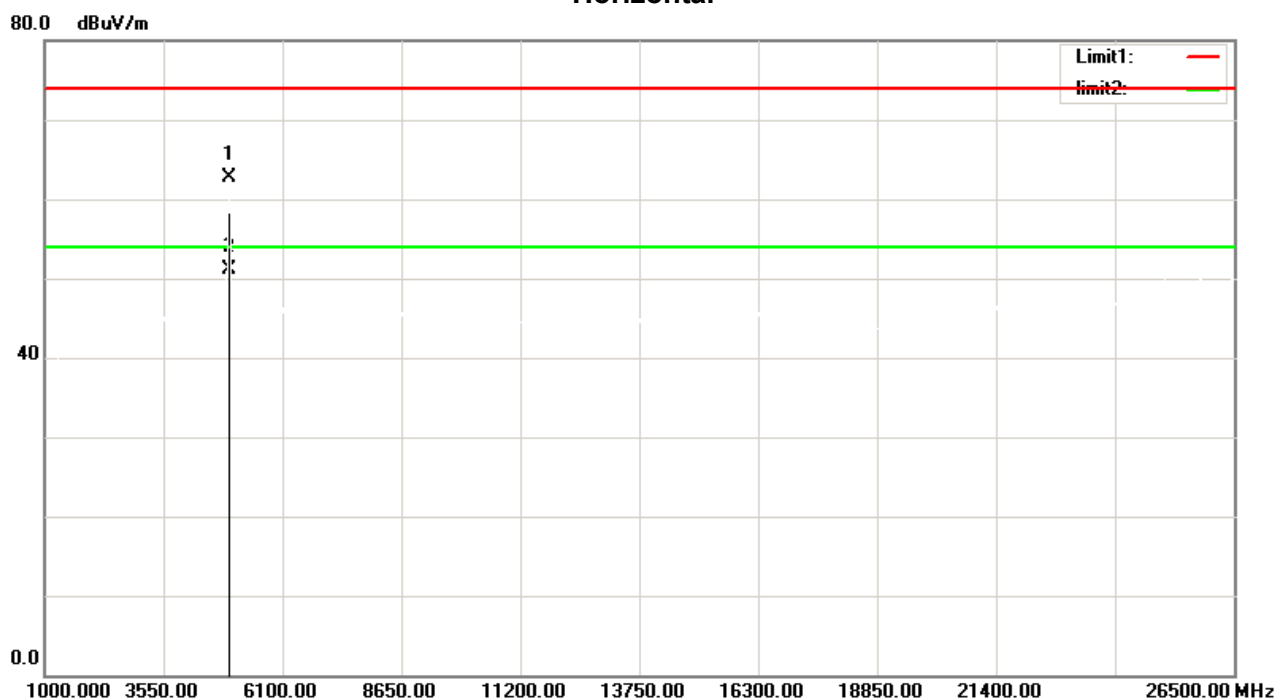
Vertical



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
1	4952.500	55.01	2.73	57.74	74.00	-16.26	peak	150	231
2 *	4952.500	47.48	2.73	50.21	54.00	-3.79	AVG	150	231

Test Mode: TX 2480 MHz_CH78_2Mbps

Horizontal



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1		4952.500	60.01	2.73	62.74	74.00	-11.26	peak	150	187
2	*	4952.500	48.39	2.73	51.12	54.00	-2.88	AVG	150	187

6 BANDWIDTH TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247) & RSS-247& RSS-Gen		
Section	Test Item	Limit
15.247(a)(2) RSS-Gen 5.1 RSS-247 6.3.1 (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=20kHz, VBW=62kHz, Sweep time =Auto. (For 1Mbps)
 RBW=30kHz, VBW=91kHz, 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	2027/05/10
2	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

6.4 TEST SETUP

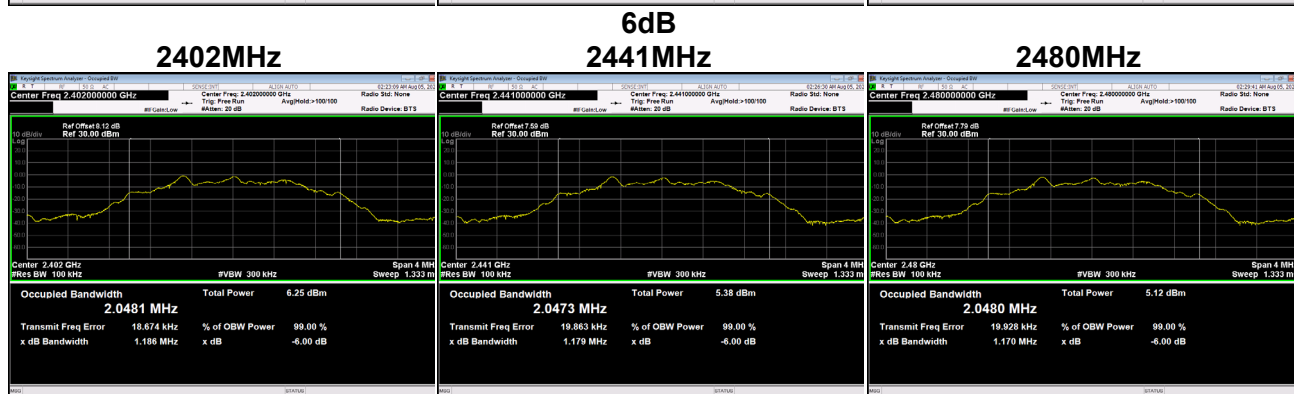
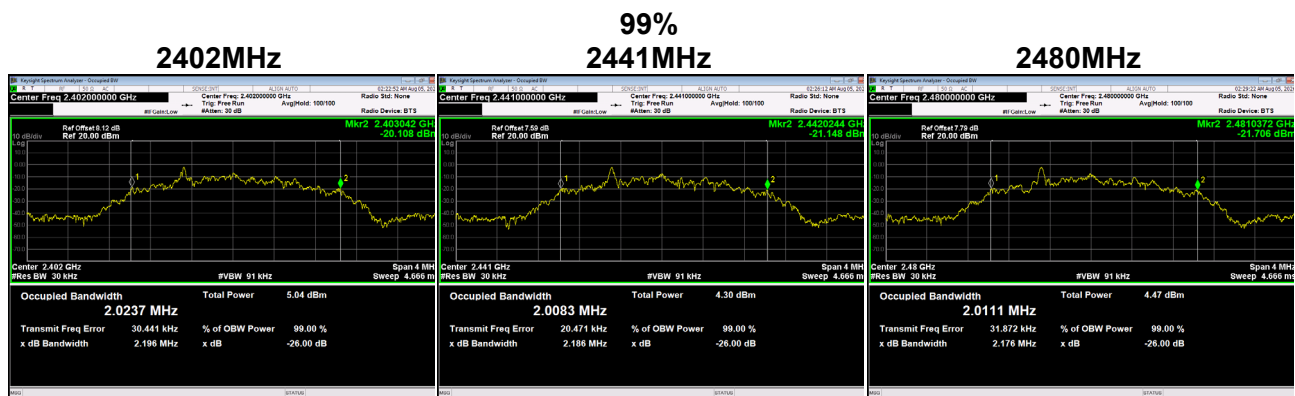


6.5 EUT OPERATION CONDITIONS

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 TEST RESULTS

TX Mode_2Mbps				
Channel	Frequency (MHz)	6 dB bandwidth (MHz)	99%OBW (MHz)	Result
CH00	2402	1.186	2.0237	PASS
CH39	2441	1.179	2.0083	PASS
CH78	2480	1.170	2.0111	PASS



7 MAXIMUM OUTPUT POWER

7.1 LIMIT

FCC Part15, Subpart C (15.247) & RSS-247		
Section	Test Item	Limit
15.247 (b) (3) RSS-247 6.3.2	Maximum Output Power	1 watt or 30dBm

7.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.1 (for peak power) of ANSI C63.10.

7.3 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2027/05/10
2	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

7.4 TEST SETUP



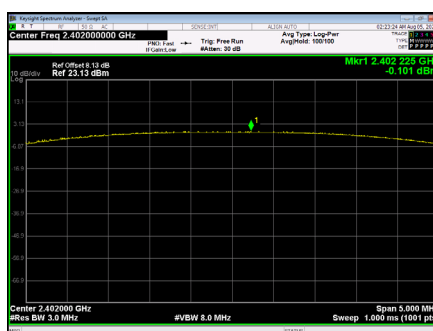
7.5 EUT OPERATION CONDITIONS

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.

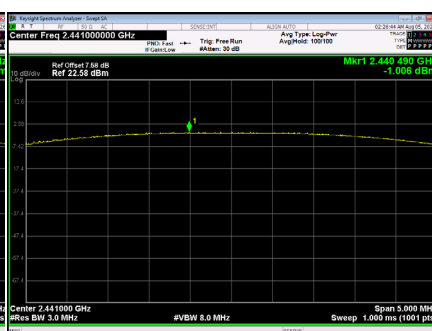
7.6 TEST RESULTS

TX Mode_2Mbps						
Gain	2.49dBi					
Channel	Frequency	Output Power	EIRP		Limit	Verdict
	(MHz)	(dBm)	(dBm)	(W)	(W)	
CH00	2402	-0.101	0.779	0.001196	1.0	PASS
CH39	2441	-1.006	-0.126	0.000971	1.0	PASS
CH78	2480	-1.129	-0.249	0.000944	1.0	PASS

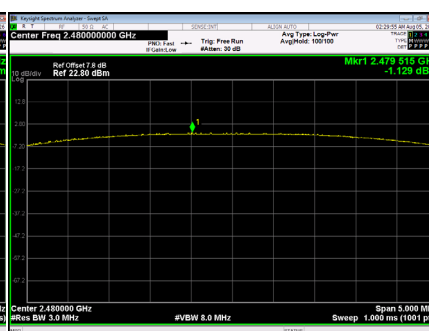
2402MHz



2441MHz



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 ISSED

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

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- 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	2027/05/10
2	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

8.4 TEST SETUP

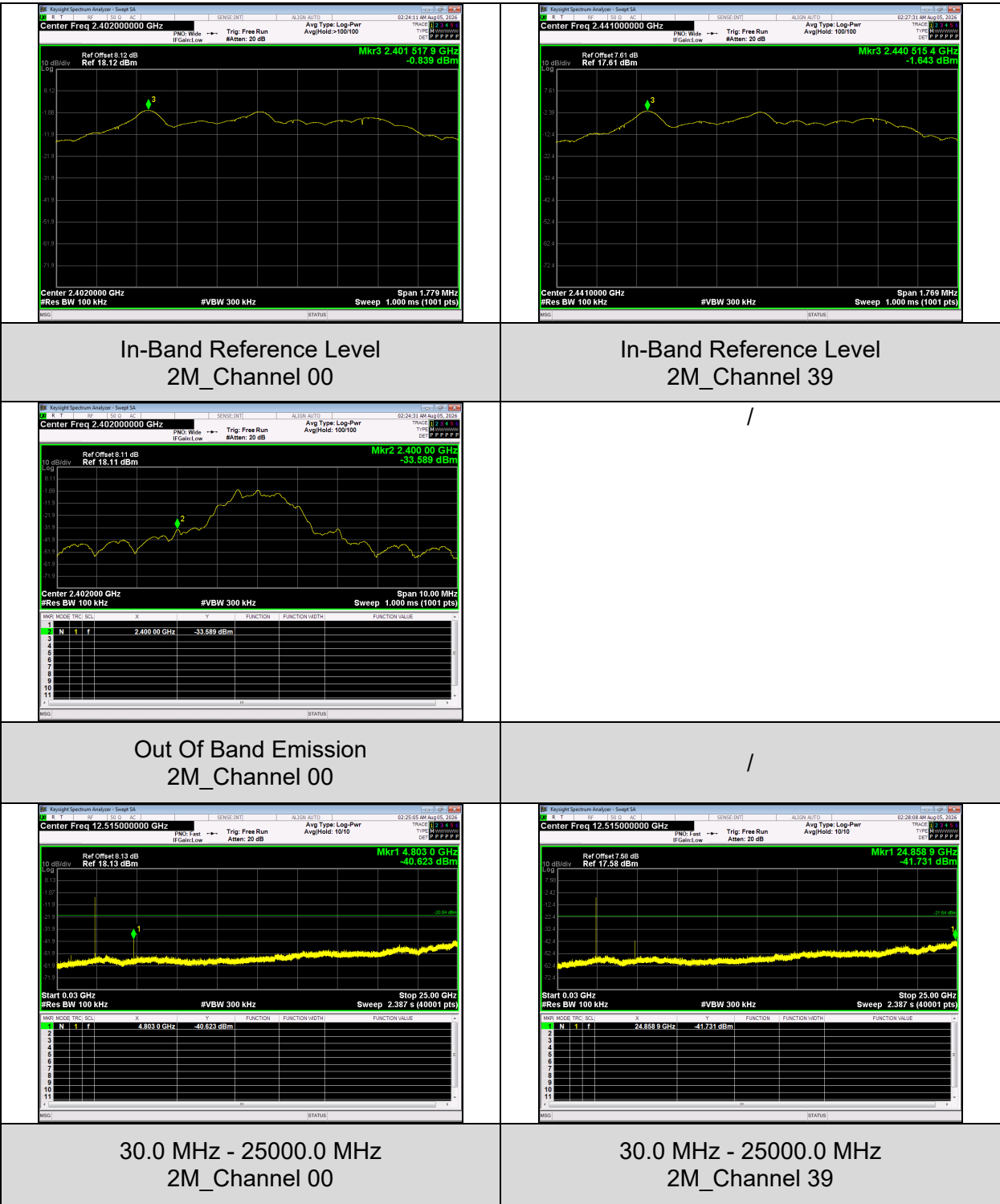


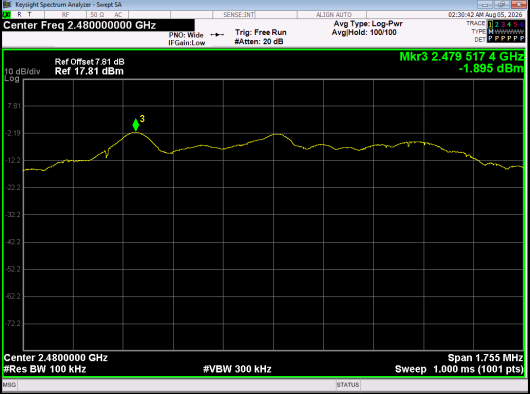
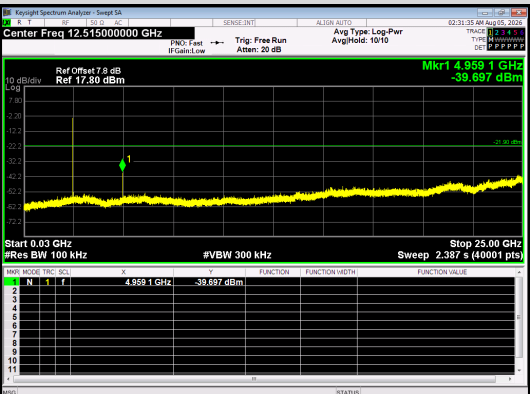
8.5 EUT OPERATION CONDITIONS

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

8.6 TEST RESULTS

Mode	Channel	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Verdict
TX_2M	0	2400.0	-33.589	-18.69	PASS
		4803.0155	-40.623	-18.69	PASS
	39	24858.9195	-41.731	-19.09	PASS
	78	2483.5	-47.726	-18.78	PASS
		4959.078	-39.697	-18.78	PASS



	/
In-Band Reference Level 2M_Channel 78	/
	/
Out Of Band Emission 2M_Channel 78	/
	/
30.0 MHz - 25000.0 MHz 2M_Channel 78	/

9 POWER SPECTRAL DENSITY TEST

9.1 LIMIT

FCC Part15, Subpart C (15.247) & RSS-247		
Section	Test Item	Limit
15.247(e) RSS-247 6.3.1 (b)	Power Spectral Density	8 dBm (in any 3 kHz)

9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW=3 kHz, VBW=9.1kHz, 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	2027/05/10
2	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

9.4 TEST SETUP

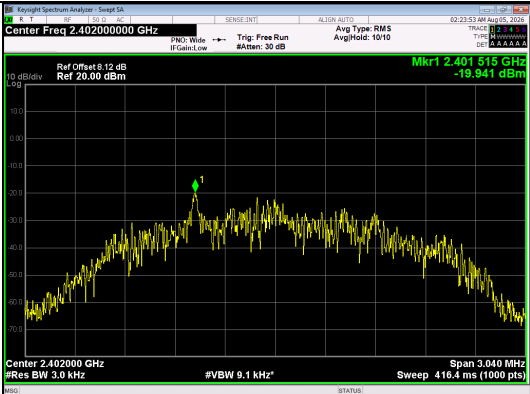
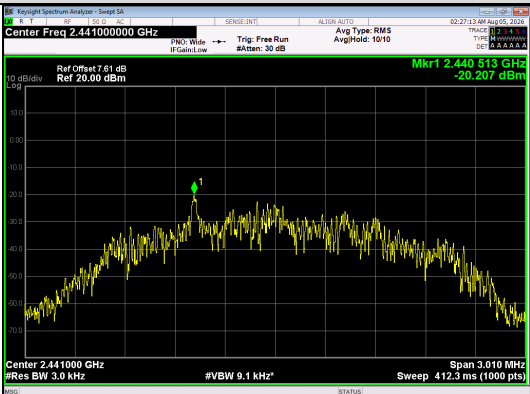
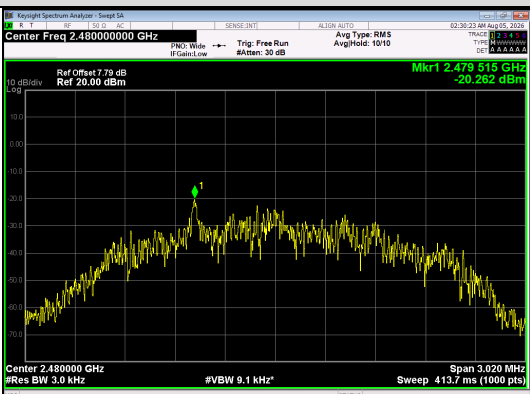


9.5 EUT OPERATION CONDITIONS

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

Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
TX_2M	00	-19.94	≤ 8	PASS
TX_2M	39	-20.21	≤ 8	PASS
TX_2M	78	-20.26	≤ 8	PASS

 2M_Channel 00	/
 2M_Channel 39	/
 2M_Channel 78	/

10 FREQUENCY STABILITY MEASUREMENT

10.1 LIMIT

RSS-Gen			
Section	Test Item	Limit	Frequency Range (MHz)
RSS-Gen 5.3	Frequency Stability	Specified in the user's manual	2402-2480

10.2 TEST PROCEDURE

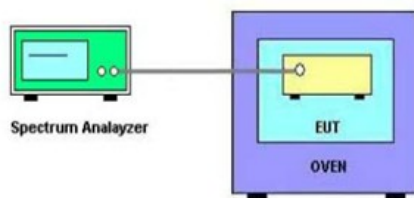
- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	30 kHz
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	2027/05/10
2	RF Cable	Mi-cable	C10-01-01-1	100309	N/A
3	Temperature conditioning	Guan Jian.HTH1000	-20-130°C	GJ1000-10D001	N/A
4	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)
5.0Vdc	(°C)	2402
	-20	2402.0146
	+20	2402.0146
	+50	2402.0146
3.1Vdc	+20	2402.0146
Max. Deviation (MHz)		0.0146
Max. Deviation (ppm)		6.08

Note: 3.1Vdc is the end point voltage, and products below 3.1Vdc will cease working.

END OF TEST REPORT