FCC Part 15C
Measurement and Test Report

For

Shenzhen Yuanyi technology Co.,Ltd

Room 801, Buliding 9, Baiyunshan Industrial Zone, Tongsheng Community,

Dalang Street, Longhua District , Shenzhen, China

FCC ID: 2AQA5-D1

FCC Rule(s):	FCC Part 15.247
Product Description:	selfie stick
Tested Model:	D1
Report No.:	WTX19X12090856W
Sample Receipt Date:	2019-12-26
Tested Date:	2019-12-26 to 2019-12-31
Issued Date:	2019-12-31
Tested By:	Jason Su/ Engineer
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

TABLE OF CONTENTS

1. GENERAL INFORMATION 4
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 4
1.2 TEST STANDARDS 5
1.3 TEST METHODOLOGY 5
1.4 TEST FACILITY 5
1.5 EUT SETUP AND TEST MODE 6
1.6 MEASUREMENT UNCERTAINTY 6
1.7 TEST EQUIPMENT LIST AND DETAILS 7
2. SUMMARY OF TEST RESULTS 9
3. RF EXPOSURE 10
3.1 STANDARD APPLICABLE 10
3.2 TEST RESULT 10
4. ANTENNA REQUIREMENT 11
4.1 STANDARD APPLICABLE 11
4.2 EVALUATION INFORMATION 11
5. POWER SPECTRAL DENSITY 12
5.1 STANDARD APPLICABLE 12
5.2 TEST PROCEDURE 12
5.3 SUMMARY OF TEST RESULTS/PLOTS 12
6. DTS BANDWIDTH 14
6.1 STANDARD APPLICABLE 14
6.2 TEST PROCEDURE 14
6.3 SUMMARY OF TEST RESULTS/PLOTS 14
7. RF OUTPUT POWER 16
7.1 STANDARD APPLICABLE 16
7.2 TEST PROCEDURE 16
7.3 SUMMARY OF TEST RESULTS/PLOTS 16
8. FIELD STRENGTH OF SPURIOUS EMISSIONS 18
8.1 STANDARD APPLICABLE 18
8.2 TEST PROCEDURE 18
8.3 CORRECTED AMPLITUDE & MARGIN CALCULATION 19
8.4 SUMMARY OF TEST RESULTS/PLOTS 19
9. OUT OF BAND EMISSIONS 27
9.1 STANDARD APPLICABLE 27
9.2 TEST PROCEDURE 27
9.3 SUMMARY OF TEST RESULTS/PLOTS 28

Report version

Version No.	Date of issue	Description
Rev.00	2019-12-31	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Yuanyi technology Co.,Ltd
Address of applicant:	Room 801, Buliding 9, Baiyunshan Industrial Zone, Tongsheng Community, Dalang Street, Longhua District , Shenzhen, China
Manufacturer:	Shenzhen Yuanyi technology Co.,Ltd
Address of manufacturer:	Room 801, Buliding 9, Baiyunshan Industrial Zone, Tongsheng Community, Dalang Street, Longhua District , Shenzhen, China

General Description of EUT	
Product Name:	selfie stick
Brand Name:	/
Model No.:	D1
Adding Model(s):	/
Rated Voltage:	DC 3V
Power Adapter:	/
Software Version:	V1.0
Hardware Version:	D1-17H26-V1.1-190709
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Bluetooth Version:	V4.0 (BLE mode)
Frequency Range:	2402-2480MHz
RF Output Power:	3.079dBm (Conducted)
Data Rate:	1Mbps
Modulation:	GFSK
Quantity of Channels:	40
Channel Separation:	2MHz
Type of Antenna:	PCB Antenna
Antenna Gain:	2.99dBi

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
558074 D01 15.247 Meas Guidance v05r02: Guidance For Compliance Measurements On Digital Transmission System, Frequency Hopping Spread Spectrum System, And Hybrid System Devices Operating Under Section 15.247 Of The Fcc Rules
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02.
The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Test Facility

Address of the test laboratory
Laboratory: Shenzhen SEM Test Technology Co., Ltd.
Address: 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101）

FCC – Registration No.: 125990
Shenzhen SEM Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintain ed in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A
The 3m Semi-anechoic chamber of Shenzhen SEM Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, with a duty cycle equal to 100%, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	Low	2402MHz
TM2	Middle	2440MHz
TM3	High	2480MHz

Test Conditions	
Temperature:	22~25 °C
Relative Humidity:	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Mobile phone	HUAWEI	PRO P30	/
Notebook	Lenovo	E445	EB12648265

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	9-150kHz ±3.74dB
		0.15-30MHz ±3.34dB
Transmitter Spurious Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2019-04-30	2020-04-29
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2019-04-30	2020-04-29
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2019-04-30	2020-04-29
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2019-04-30	2020-04-29
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2019-04-30	2020-04-29
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2019-04-30	2020-04-29
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2019-04-30	2020-04-29
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2019-04-30	2020-04-29
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2019-04-30	2020-04-29
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2019-04-30	2020-04-29
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2019-03-18	2020-03-17
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2019-03-18	2020-03-17
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2019-03-18	2020-03-17
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2019-03-18	2020-03-17
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17

Software List			
Description	**Manufacturer**	**Model**	**Version**
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§2.1093	RF Exposure	Compliant
§15.203; §15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§15.207(a)	Conducted Emission	N/A:
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	DTS Bandwidth	Compliant
§15.247(b)(3)	RF Output Power	Compliant
§15.209(a)	Radiated Emission	Compliant
§15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable. The product is powered by a DC power and has no charging function.

3. RF Exposure

3.1 Standard Applicable

According to §1.1307 and §2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

This product has a PCB antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

According to 15.247(a)(1)(iii), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Procedure

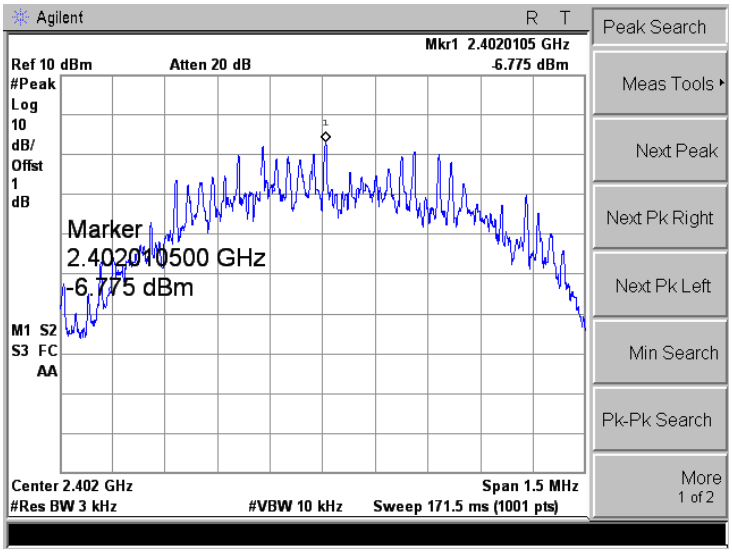
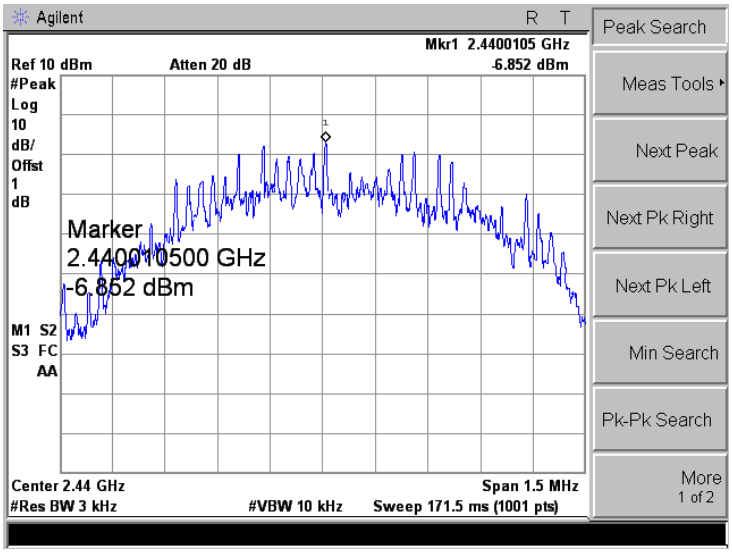
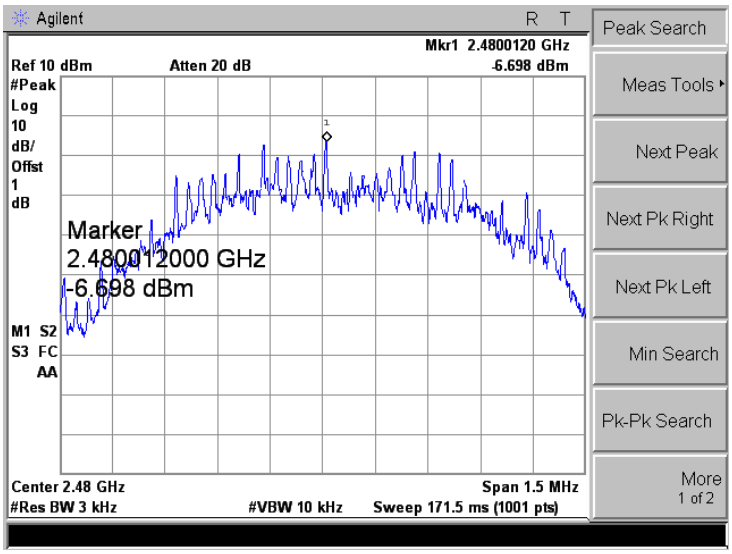
According to the KDB 558074 D01 v05r02 Subclause 8.4 and ANSI C63.10-2013 Subclause 11.10.2, the test method of power spectral density as below:

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 × RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 Summary of Test Results/Plots

Test Mode	Test Channel	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
GFSK(BLE)	Low	-6.775	8
	Middle	-6.852	8
	High	-6.698	8

Please refer to the following test plots:

Low	
Middle	
High	

6. DTS Bandwidth

6.1 Standard Applicable

According to 15.247(a)(2), systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Procedure

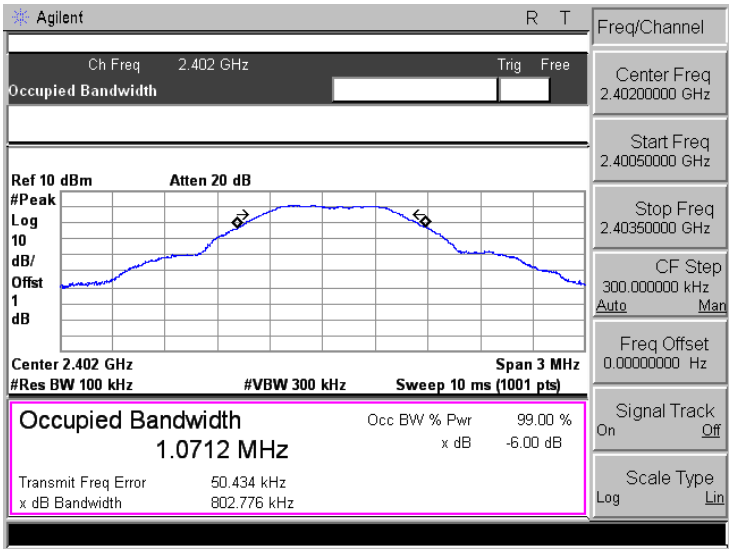
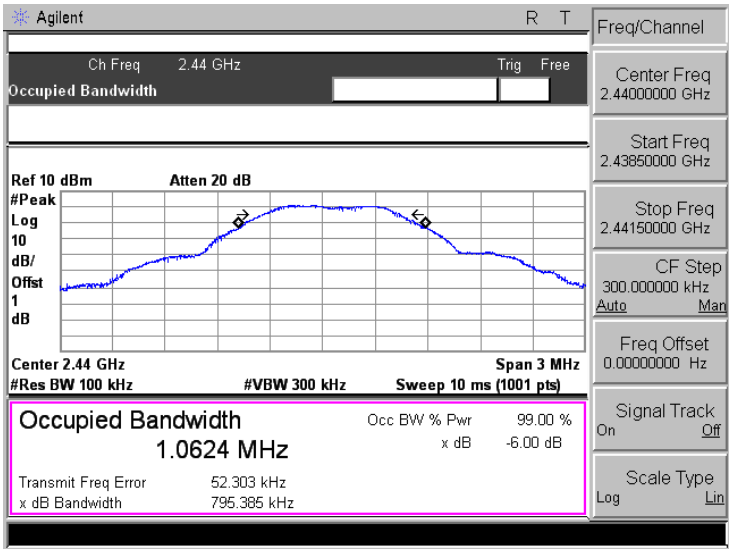
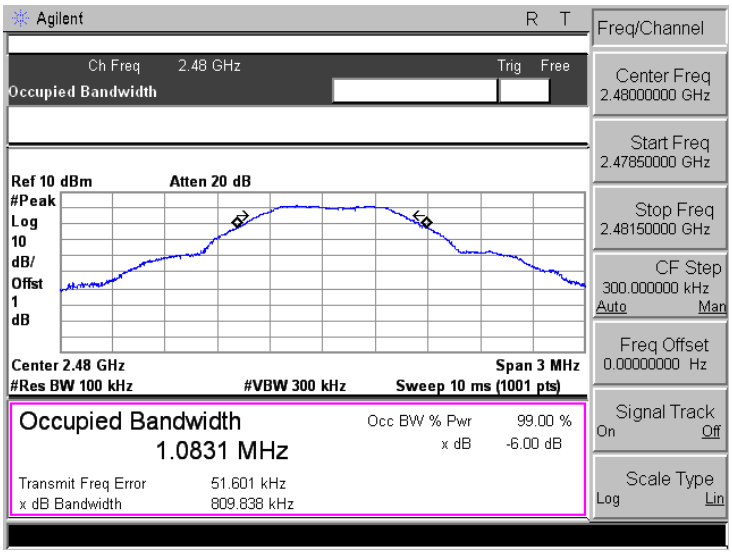
According to the KDB 558074 D01 v05r02 Subclause 8.2 and ANSI C63.10-2013 Subclause 11.8.1, the test method of DTS Bandwidth as below:

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ⩾ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 Summary of Test Results/Plots

Test Mode	Test Channel	6 dB Bandwidth kHz	Limit kHz
GFSK(BLE)	Low	802.776	≥500
	Middle	795.385	≥500
	High	809.838	≥500

Please refer to the following test plots:

Low	
Middle	
High	

7. RF Output Power

7.1 Standard Applicable

According to 15.247(b)(3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

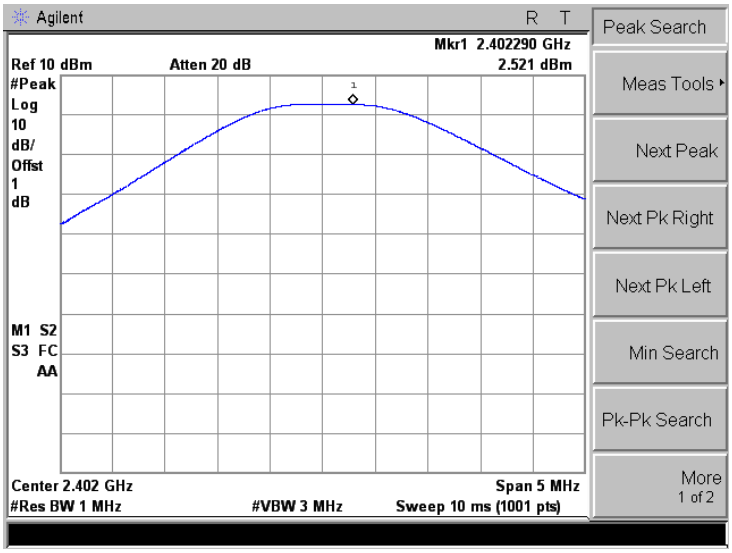
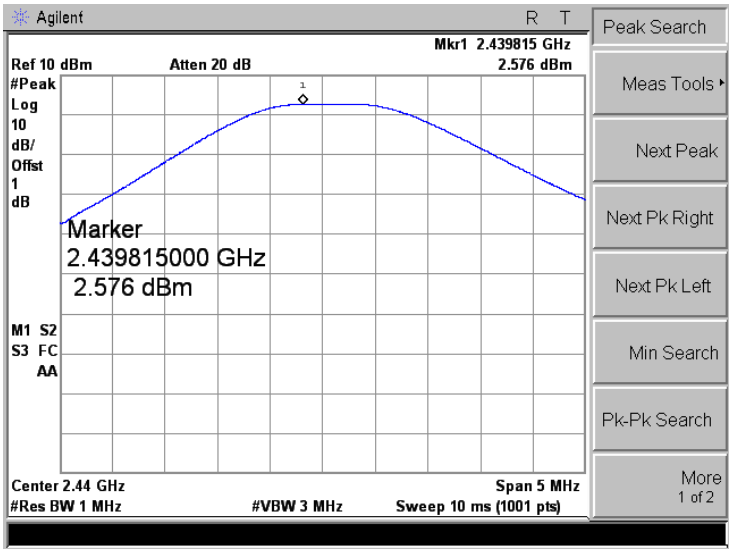
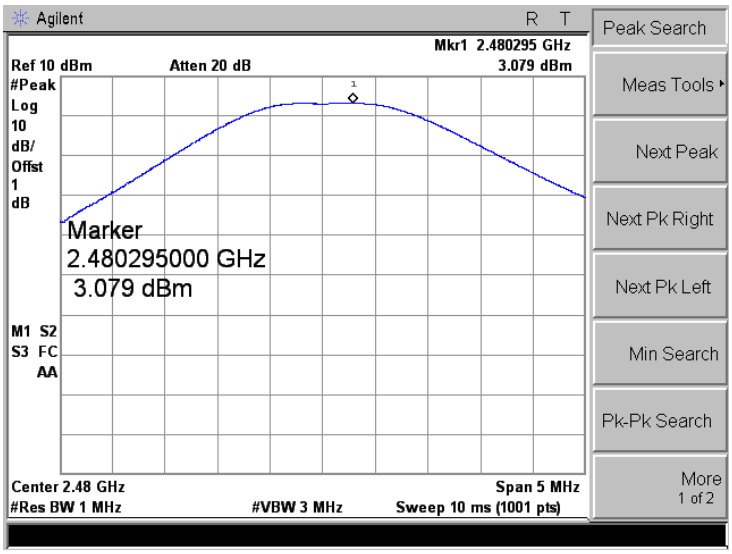
7.2 Test Procedure

According to the KDB-558074 D01 v05r02 Subclause 8.3.1.1 and ANSI C63.10-2013 Subclause 11.9.1.1, this procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

a) Set the RBW ⩾ DTS bandwidth.
b) Set VBW ⩾ 3 × RBW.
c) Set span ⩾ 3 x RBW
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

7.3 Summary of Test Results/Plots

Test Mode	Test Channel	Reading dBm	Output Power mW	Limit mW
GFSK(BLE)	Low	2.521	1.79	1000
	Middle	2.576	1.81	1000
	High	3.079	2.03	1000

Low	
Middle	
High	

8. Field Strength of Spurious Emissions

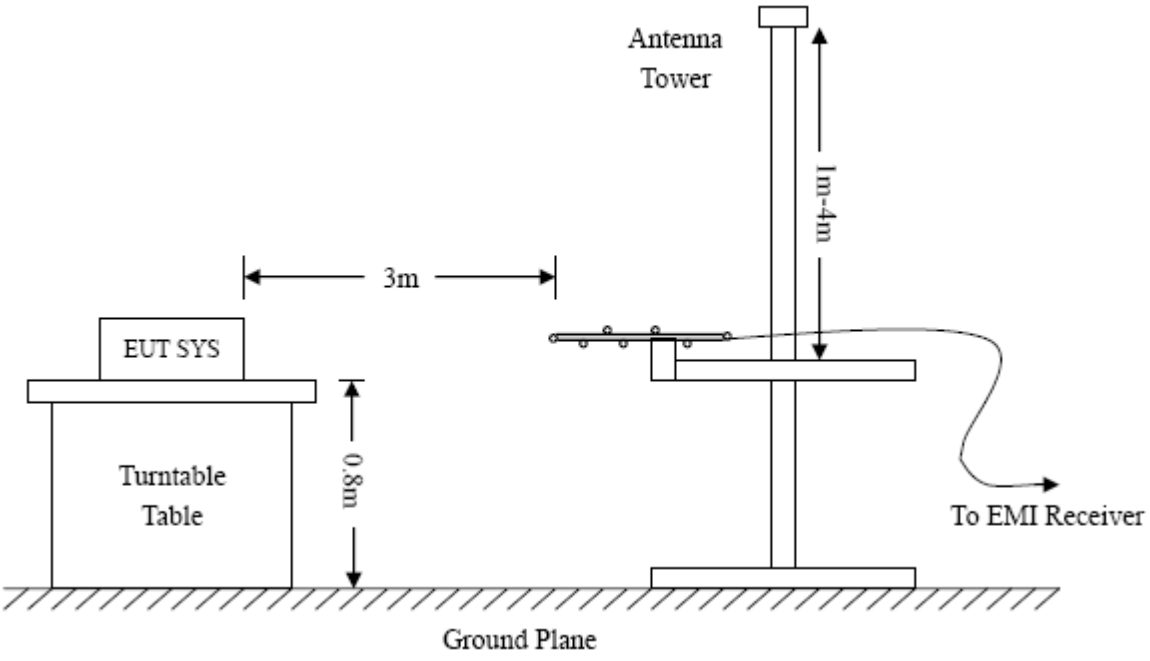
8.1 Standard Applicable

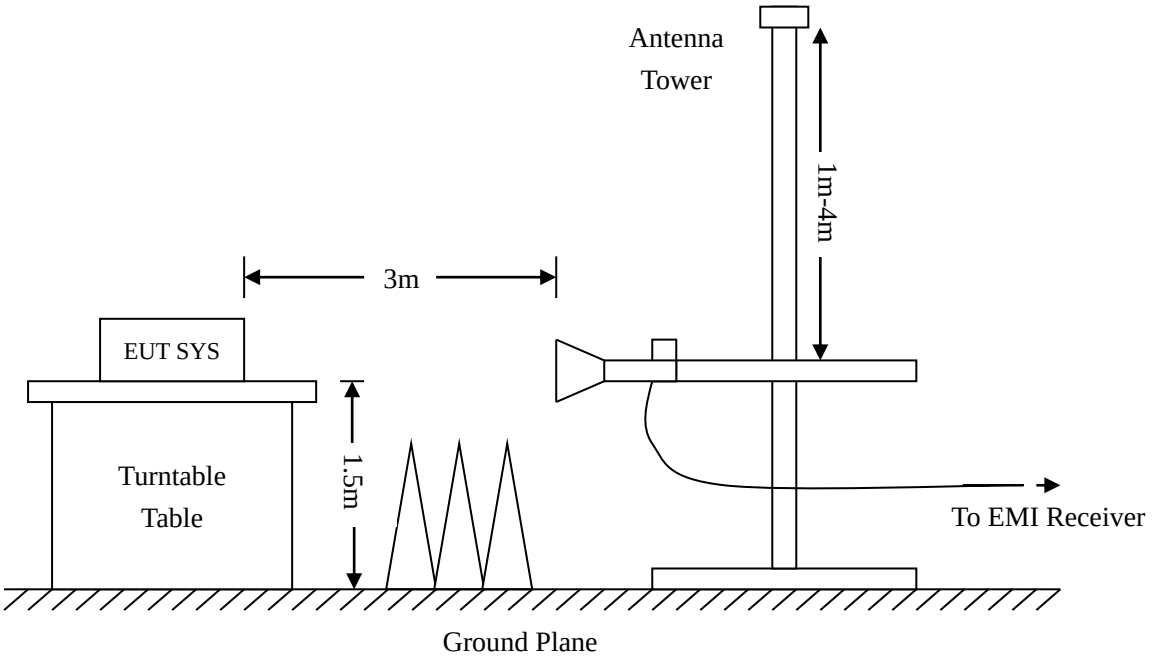
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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 conducted power limits. If the transmitter complies with the conducted 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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

8.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.





Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

8.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

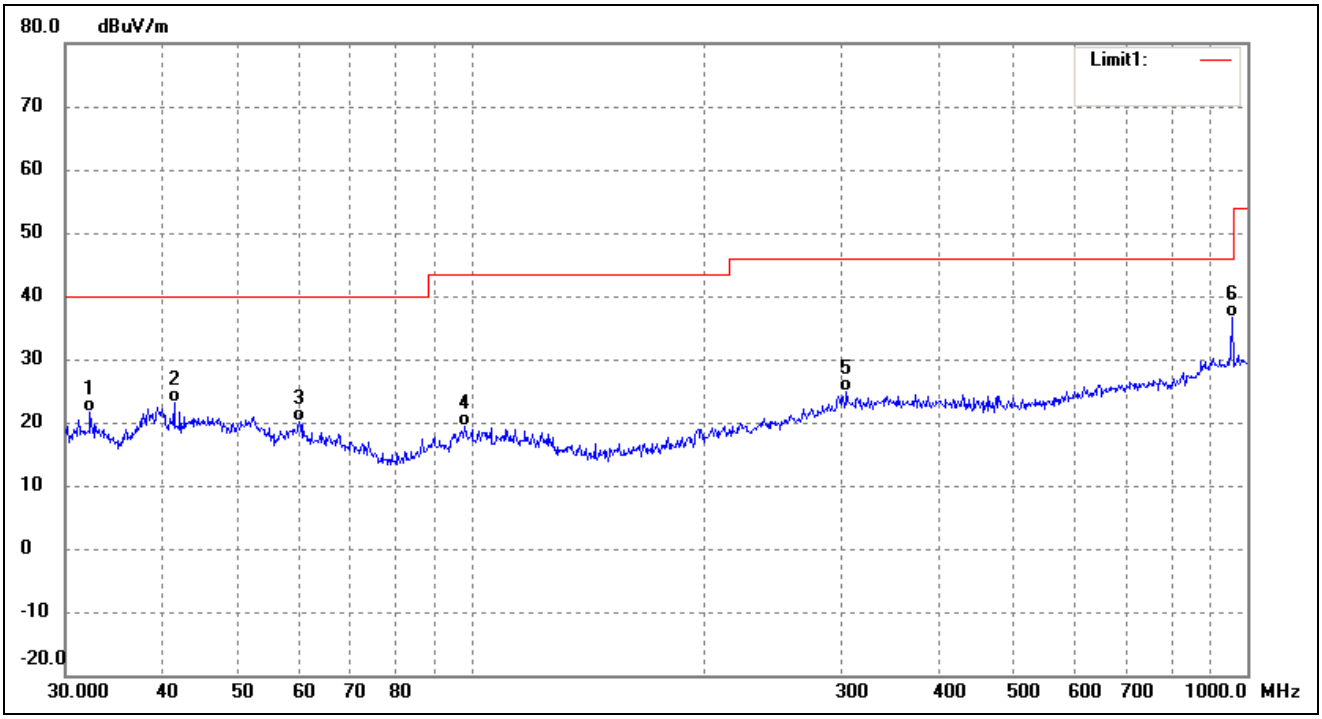
Margin = Corr. Ampl. – FCC Part 15 Limit

8.4 Summary of Test Results/Plots

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

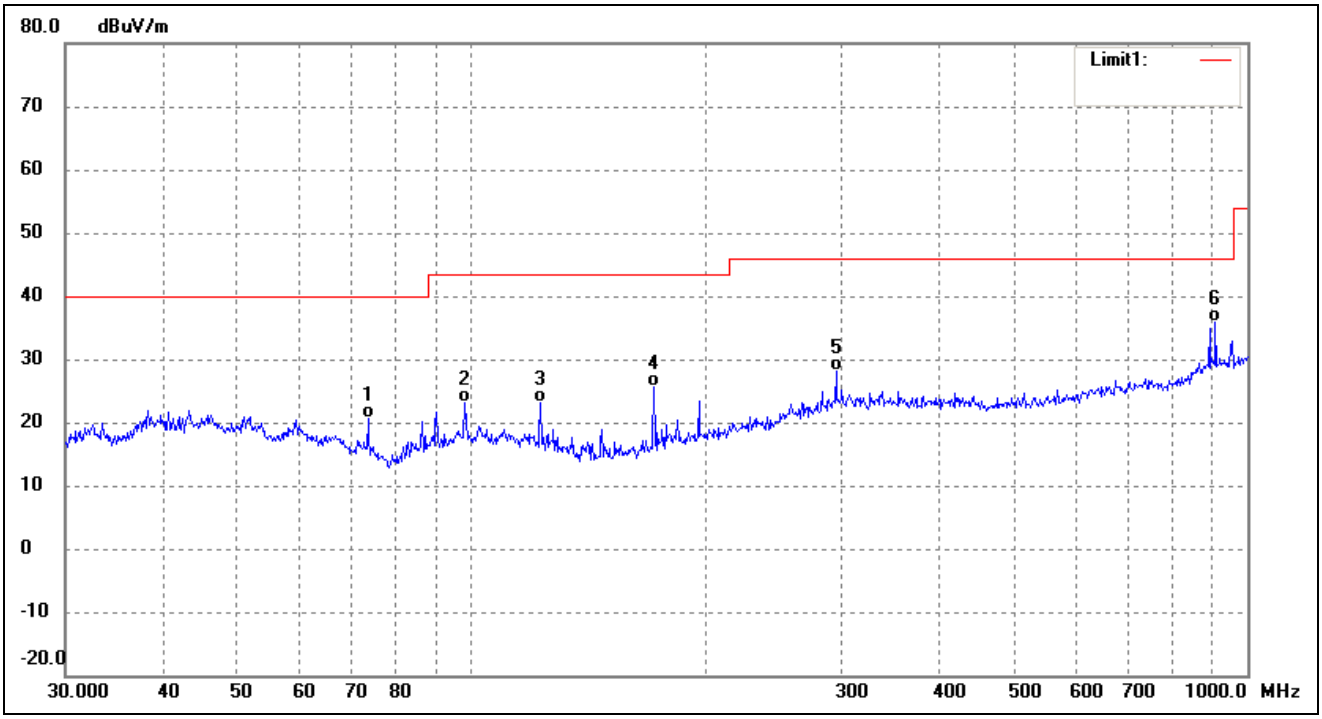
➢ Spurious Emissions Below 1GHz

Test Channel	Low	Polarity:	Horizontal



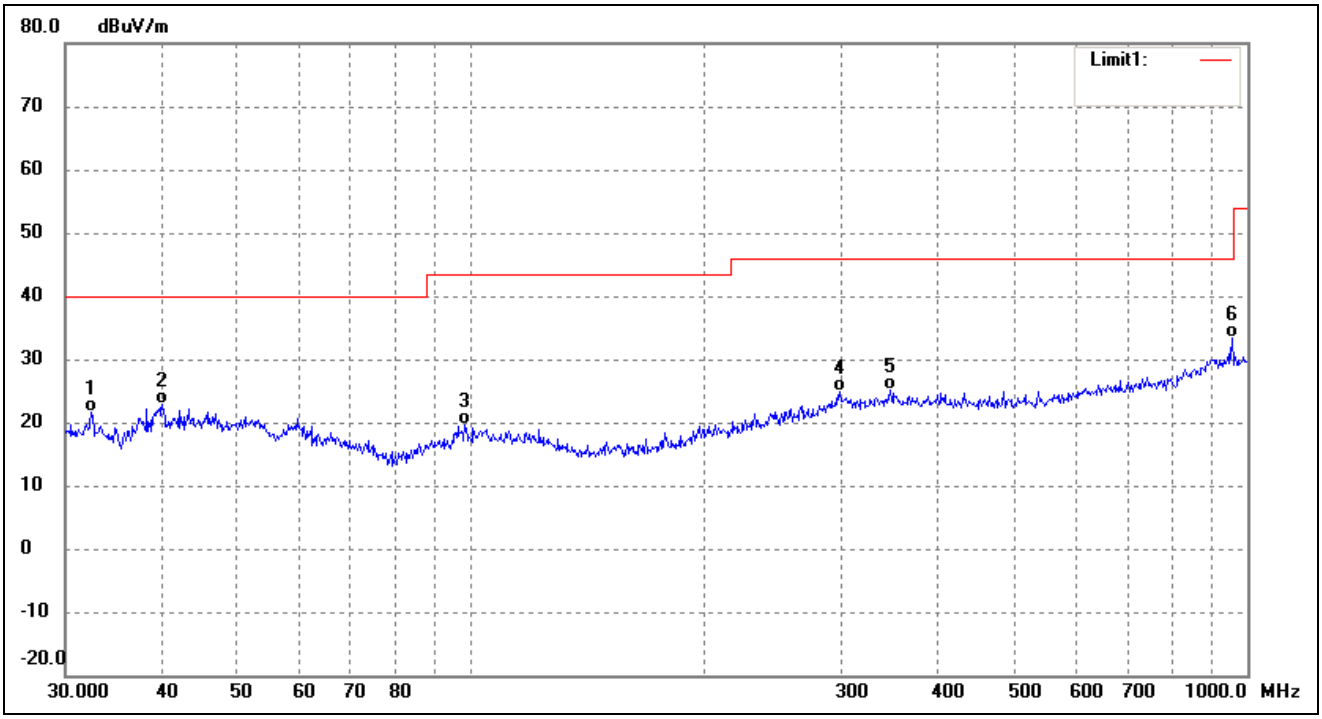
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	32.2925	37.85	-16.26	21.59	40.00	-18.41	213	100	peak
2	41.4215	37.29	-14.09	23.20	40.00	-16.80	149	100	peak
3	60.0691	35.19	-15.16	20.03	40.00	-19.97	94	100	peak
4	98.1419	34.75	-15.29	19.46	43.50	-24.04	265	100	peak
5	304.6099	32.88	-7.95	24.93	46.00	-21.07	136	100	peak
6	955.4381	37.64	-1.12	36.52	46.00	-9.48	213	100	peak

Test Channel	Low	Polarity:	Vertical



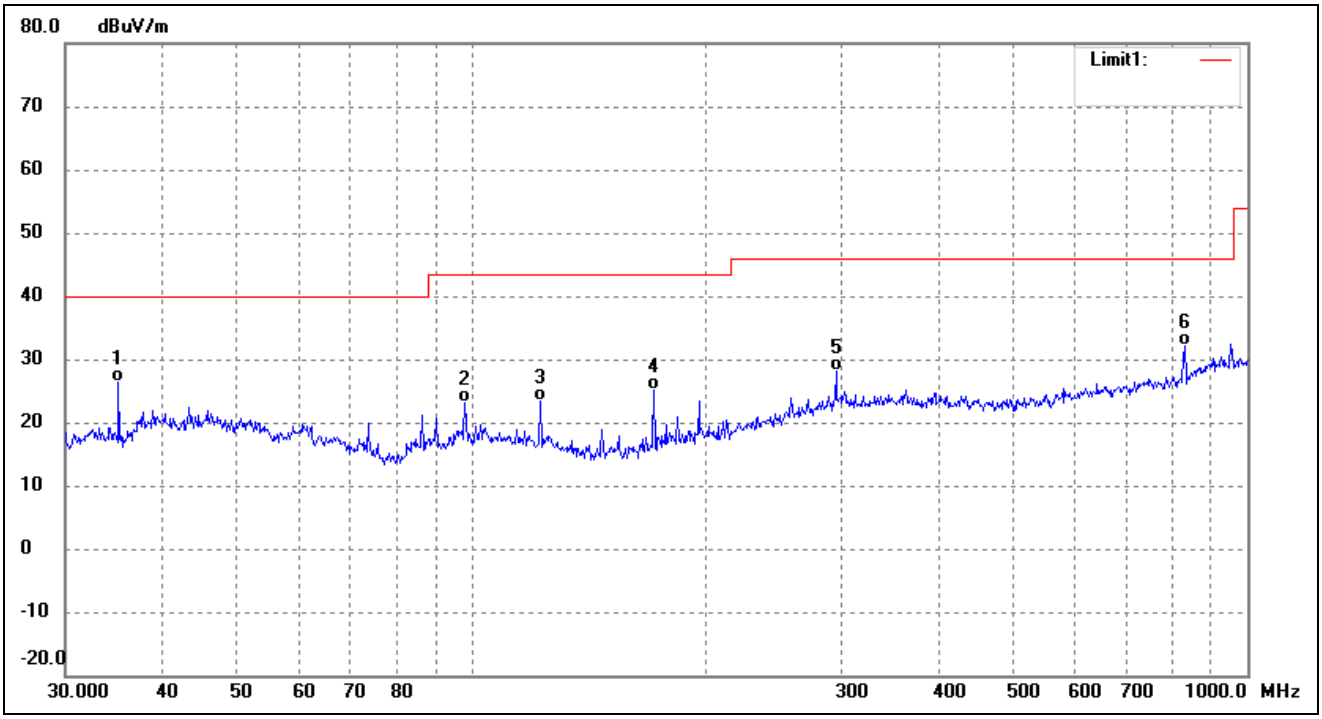
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	73.6170	38.46	-17.91	20.55	40.00	-19.45	188	100	peak
2	98.1419	38.38	-15.29	23.09	43.50	-20.41	240	100	peak
3	122.8340	39.53	-16.34	23.19	43.50	-20.31	92	100	peak
4	171.9946	41.11	-15.51	25.60	43.50	-17.90	309	100	peak
5	295.1469	36.43	-8.24	28.19	46.00	-17.81	156	100	peak
6	909.6667	36.85	-1.04	35.81	46.00	-10.19	244	100	peak

Test Channel	Middle	Polarity:	Horizontal



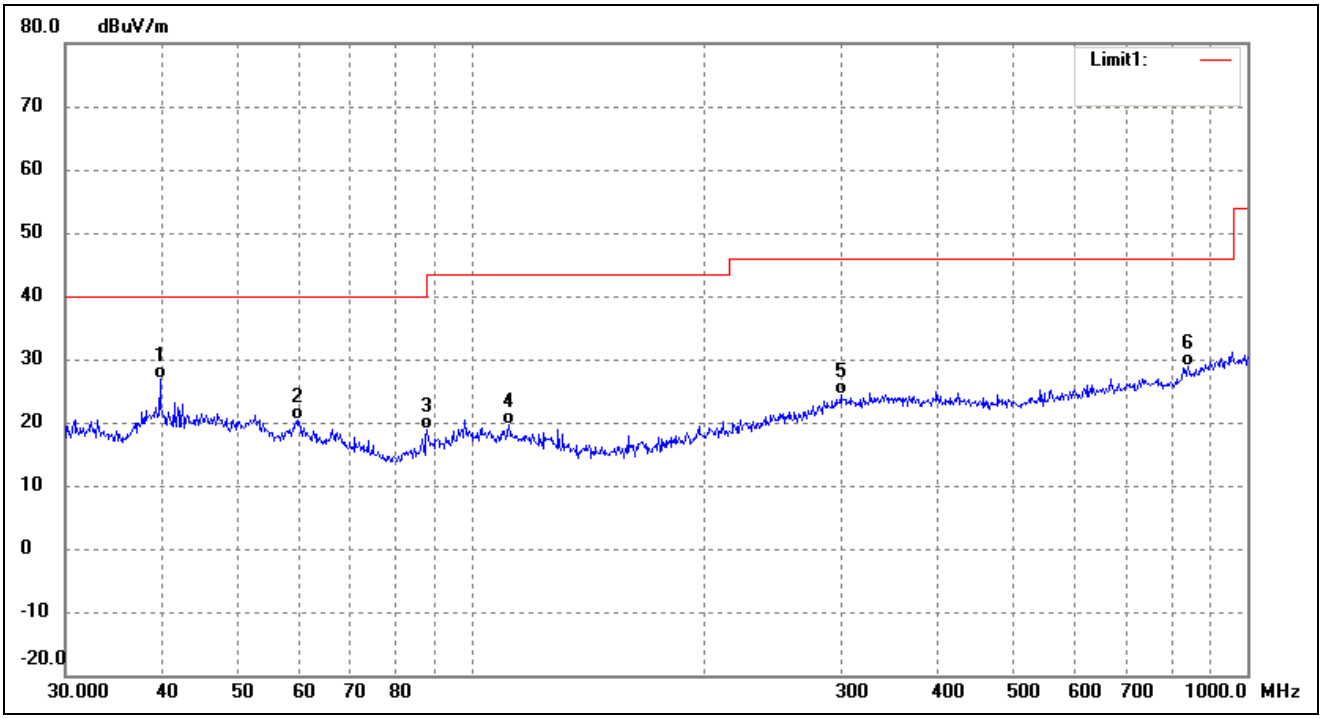
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	32.4059	37.86	-16.25	21.61	40.00	-18.39	236	100	peak
2	39.9942	37.05	-14.16	22.89	40.00	-17.11	90	100	peak
3	98.1419	34.96	-15.29	19.67	43.50	-23.83	300	100	peak
4	298.2681	32.79	-7.97	24.82	46.00	-21.18	121	100	peak
5	346.8092	32.81	-7.70	25.11	46.00	-20.89	136	100	peak
6	955.4381	34.54	-1.12	33.42	46.00	-12.58	177	100	peak

Test Channel	Middle	Polarity:	Vertical



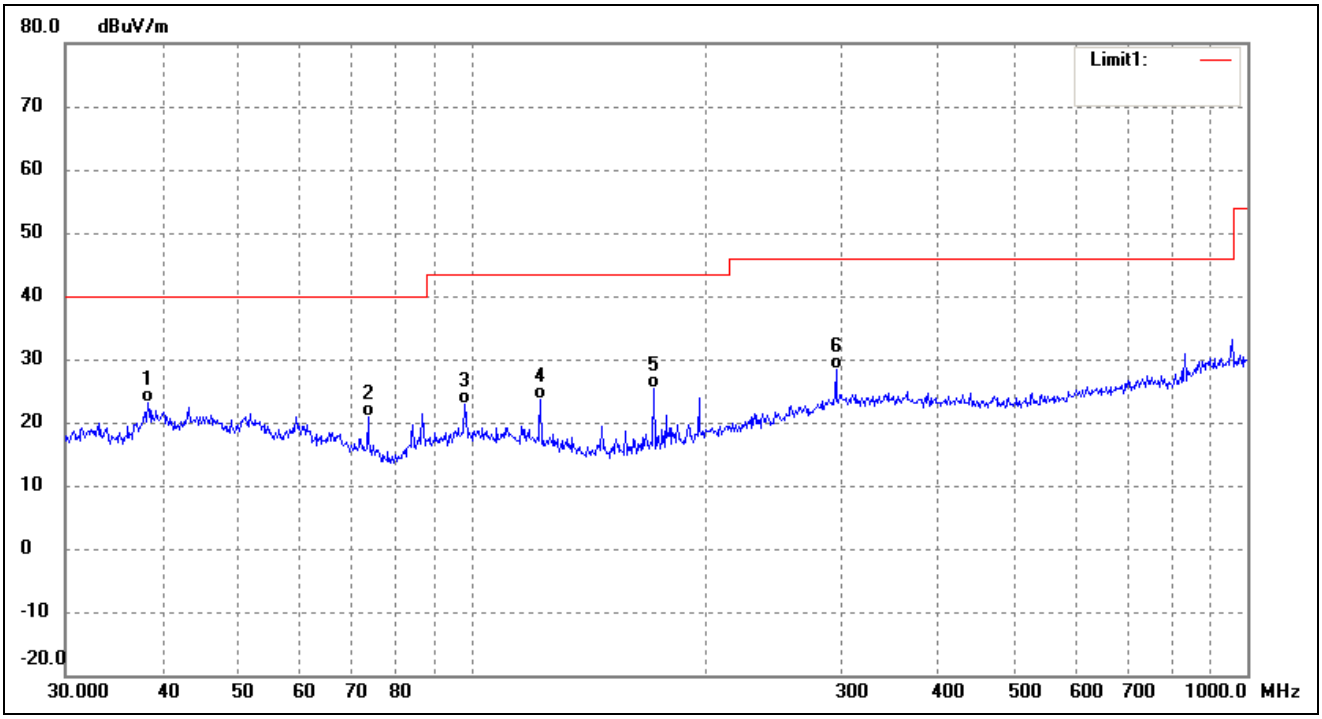
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	35.1278	42.35	-16.03	26.32	40.00	-13.68	143	100	peak
2	98.1419	38.36	-15.29	23.07	43.50	-20.43	169	100	peak
3	122.8340	39.73	-16.34	23.39	43.50	-20.11	92	100	peak
4	171.9946	40.72	-15.51	25.21	43.50	-18.29	321	100	peak
5	295.1469	36.38	-8.24	28.14	46.00	-17.86	355	100	peak
6	830.4002	35.15	-2.98	32.17	46.00	-13.83	169	100	peak

Test Channel	High	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	39.7146	41.03	-14.27	26.76	40.00	-13.24	222	100	peak
2	59.6493	35.54	-15.14	20.40	40.00	-19.60	124	100	peak
3	87.7248	36.26	-17.47	18.79	40.00	-21.21	98	100	peak
4	111.7380	34.61	-14.93	19.68	43.50	-23.82	118	100	peak
5	299.3158	32.21	-7.87	24.34	46.00	-21.66	341	100	peak
6	839.1818	31.60	-2.84	28.76	46.00	-17.24	93	100	peak

Test Channel	High	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	38.3462	37.84	-14.80	23.04	40.00	-16.96	166	100	peak
2	73.6170	38.90	-17.91	20.99	40.00	-19.01	213	100	peak
3	98.1419	38.28	-15.29	22.99	43.50	-20.51	50	100	peak
4	122.8340	39.94	-16.34	23.60	43.50	-19.90	145	100	peak
5	171.9946	40.87	-15.51	25.36	43.50	-18.14	304	100	peak
6	295.1469	36.59	-8.24	28.35	46.00	-17.65	336	100	peak

➢ Spurious Emissions Above 1GHz

Frequency (MHz)	Reading (dBuV/m)	Correct dB	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2402MHz							
4804	59.78	-3.59	56.19	74	-17.81	H	PK
4804	38.41	-3.59	34.82	54	-19.18	H	AV
7206	59.51	-0.52	58.99	74	-15.01	H	PK
7206	39.95	-0.52	39.43	54	-14.57	H	AV
4804	60.66	-3.59	57.07	74	-16.93	V	PK
4804	39.28	-3.59	35.69	54	-18.31	V	AV
7206	58.22	-0.52	57.7	74	-16.3	V	PK
7206	40.79	-0.52	40.27	54	-13.73	V	AV
Middle Channel-2440MHz							
4880	58.13	-3.49	54.64	74	-19.36	H	PK
4880	41.48	-3.49	37.99	54	-16.01	H	AV
7320	61.27	-0.47	60.8	74	-13.2	H	PK
7320	39.53	-0.47	39.06	54	-14.94	H	AV
4880	61.99	-3.49	58.5	74	-15.5	V	PK
4880	41.45	-3.49	37.96	54	-16.04	V	AV
7320	60.34	-0.47	59.87	74	-14.13	V	PK
7320	39.76	-0.47	39.29	54	-14.71	V	AV
High Channel-2480MHz							
4960	59.07	-3.41	55.66	74	-18.34	H	PK
4960	40.5	-3.41	37.09	54	-16.91	H	AV
7440	58.04	-0.42	57.62	74	-16.38	H	PK
7440	39.29	-0.42	38.87	54	-15.13	H	AV
4960	61.57	-3.41	58.16	74	-15.84	V	PK
4960	39.34	-3.41	35.93	54	-18.07	V	AV
7440	59.08	-0.42	58.66	74	-15.34	V	PK
7440	39	-0.42	38.58	54	-15.42	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

9. Out of Band Emissions

9.1 Standard Applicable

According to §15.247(d), 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 conducted power limits. If the transmitter complies with the conducted 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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

9.2 Test Procedure

According to the KDB 558074 D01 v05r02 Subclause 8.4 and ANSI C63.10-2013 Subclause 11.11, the Emissions in nonrestricted frequency bands test method as follows:

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.

According to the KDB 558074 D01 v05r02 Subclause 8.5 and ANSI C63.10-2013 Subclause 11.12, the Emissions in restricted frequency bands test method as follows:

A. Radiated emission measurements:
Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)
RBW = 1MHz, VBW = 1MHz for peak value measured
RBW = 1MHz, VBW = 10Hz for average value measured
Sweep = auto; Detector function = peak/average; Trace = max hold
All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

B. Antenna-port conducted measurements

Peak emission levels are measured by setting the instrument as follows:

a) RBW = as specified in Table 9/

b) VBW ⩾ [3 × RBW].

c) Detector = peak.

d) Sweep time = auto.

e) Trace mode = max hold.

f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be lengthened for low-duty-cycle applications.)

Table 9—RBW as a function of frequency

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1000 MHz	100 kHz to 120 kHz
>1000 MHz	1 MHz

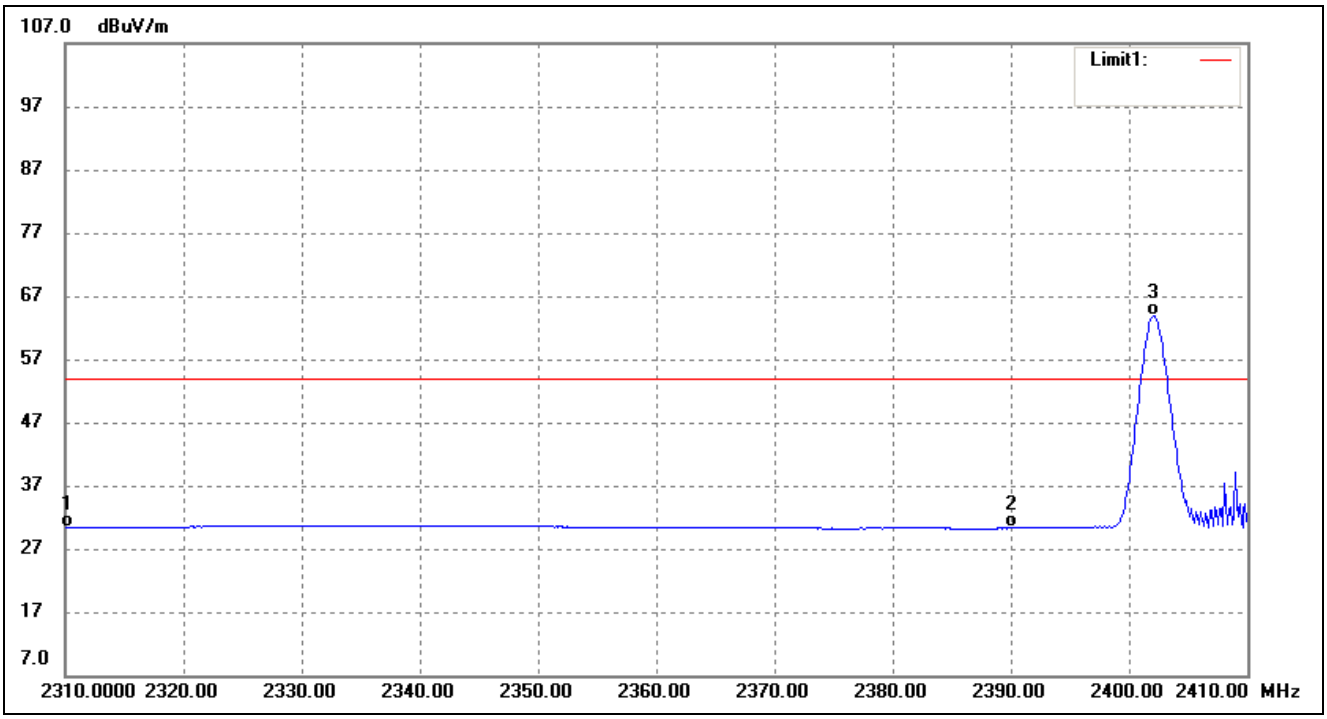
If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

9.3 Summary of Test Results/Plots

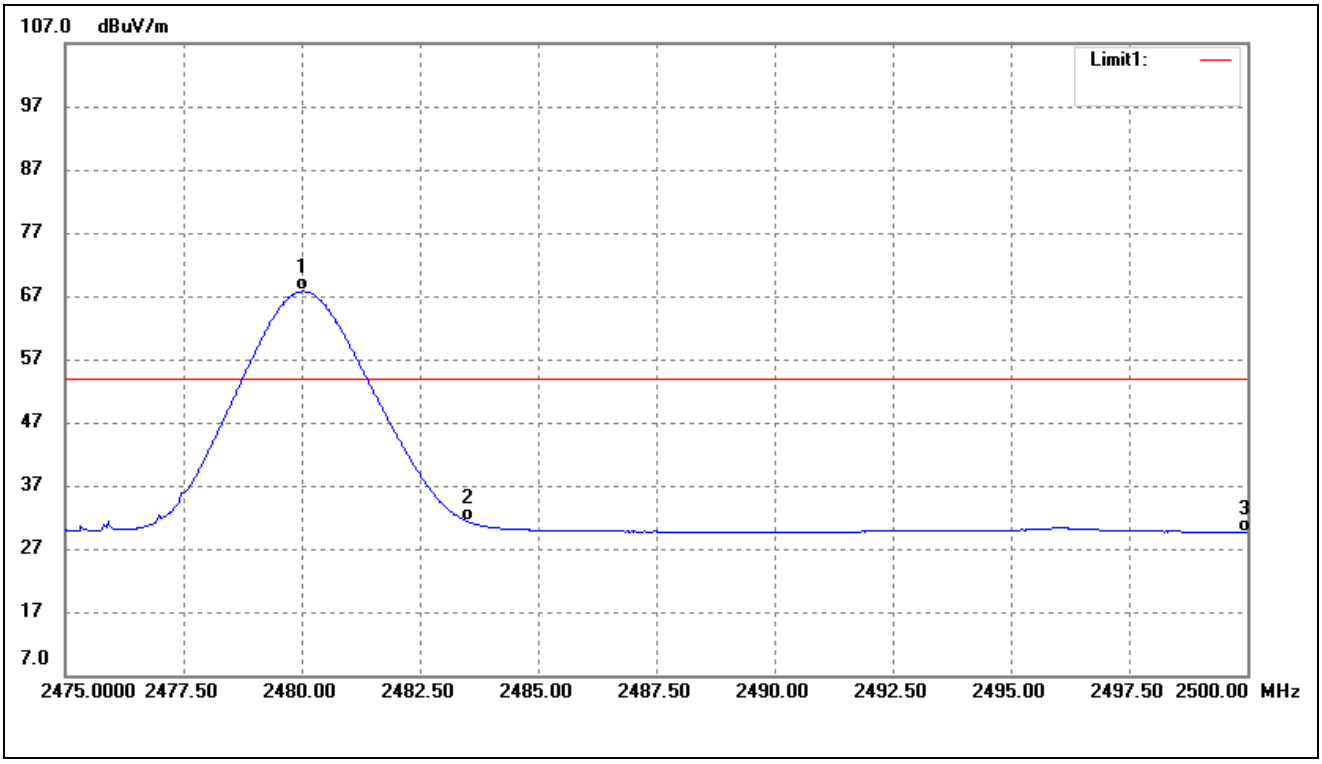
➢ Radiated test

Test Channel	Low	Polarity:	Horizontal (worst case)



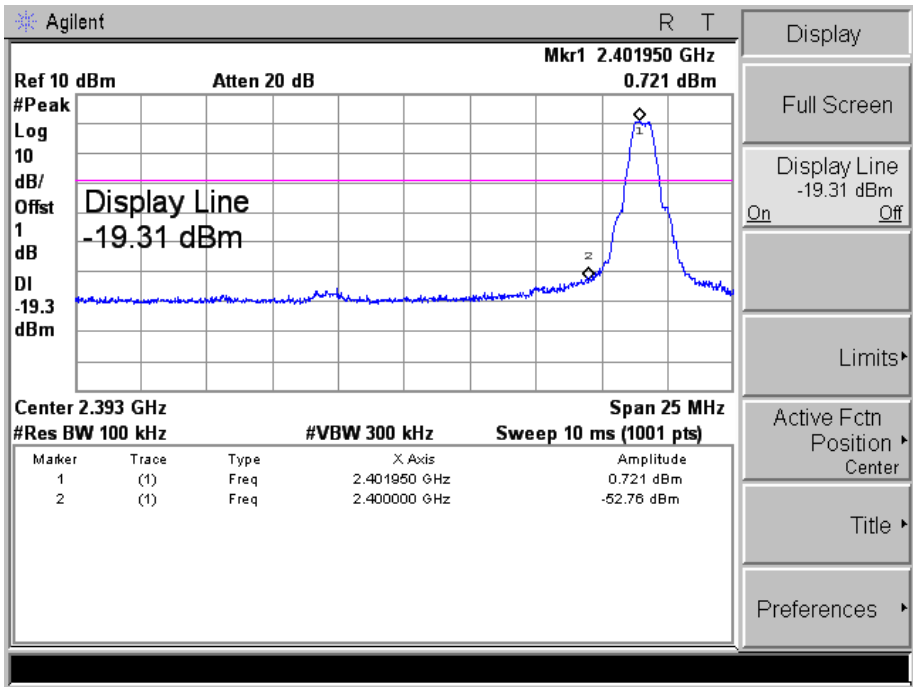
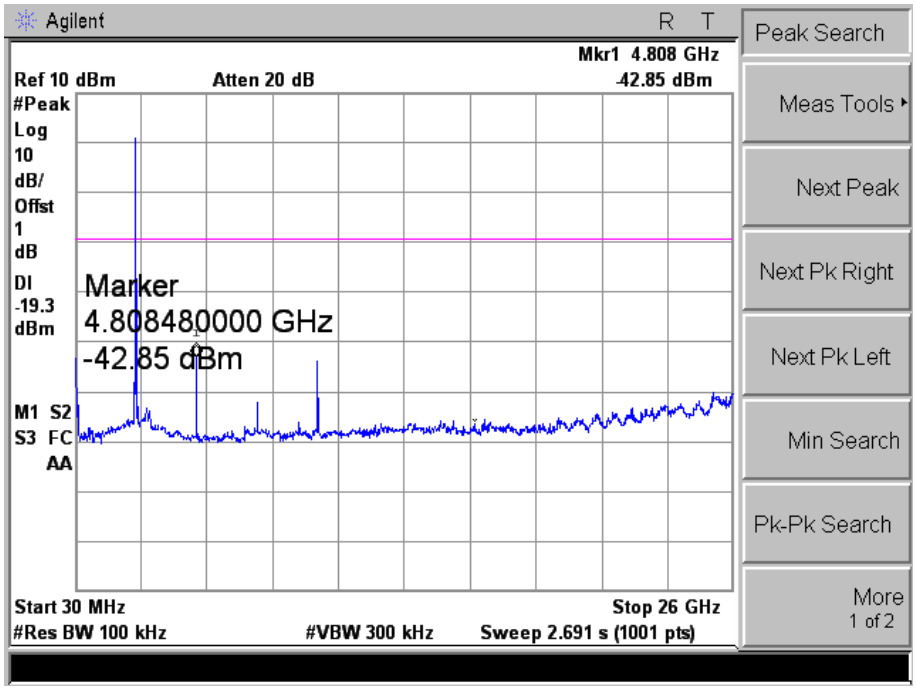
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	40.04	-9.66	30.38	54.00	-23.62	Average Detector
	2310.000	51.76	-9.66	42.10	74.00	-31.90	Peak Detector
2	2390.000	39.79	-9.50	30.29	54.00	-23.71	Average Detector
	2390.000	51.01	-9.50	41.51	74.00	-32.49	Peak Detector
3	2402.100	73.31	-9.47	63.84	/	/	Average Detector
	2402.500	75.82	-9.47	66.35	/	/	Peak Detector

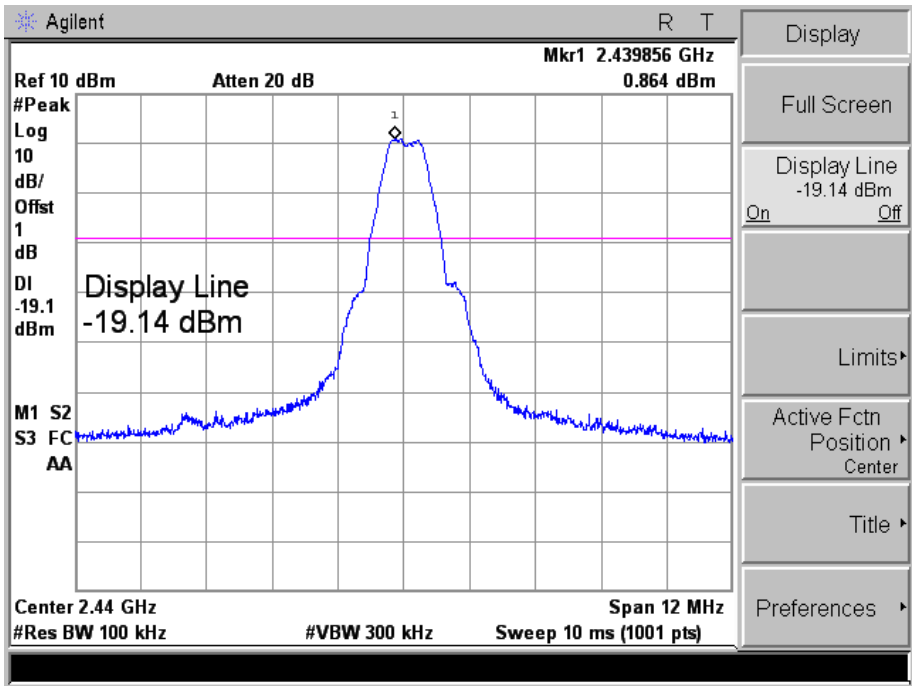
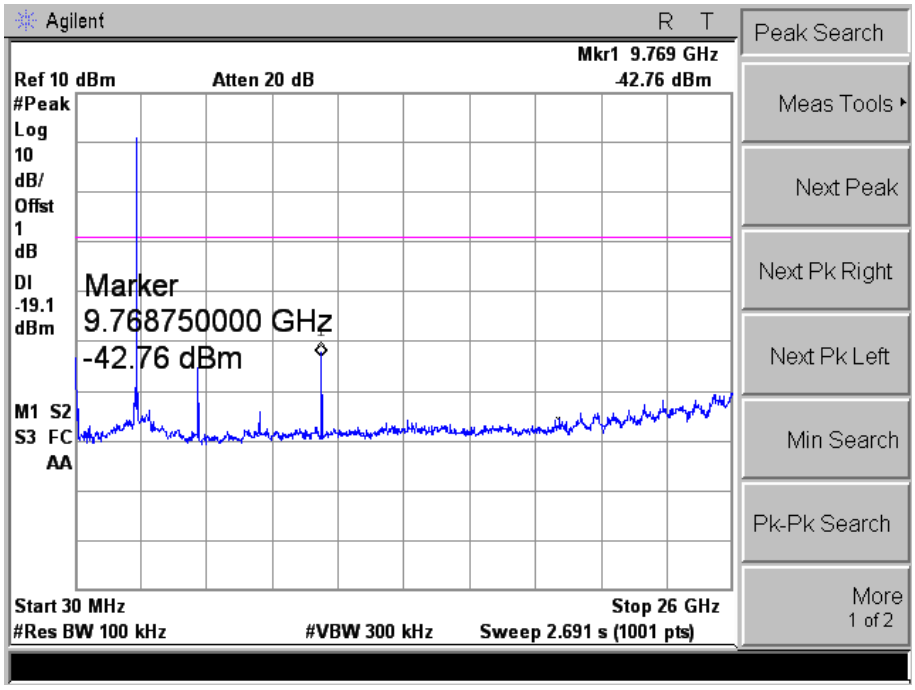
Test Channel	High	Polarity:	Horizontal (worst case)

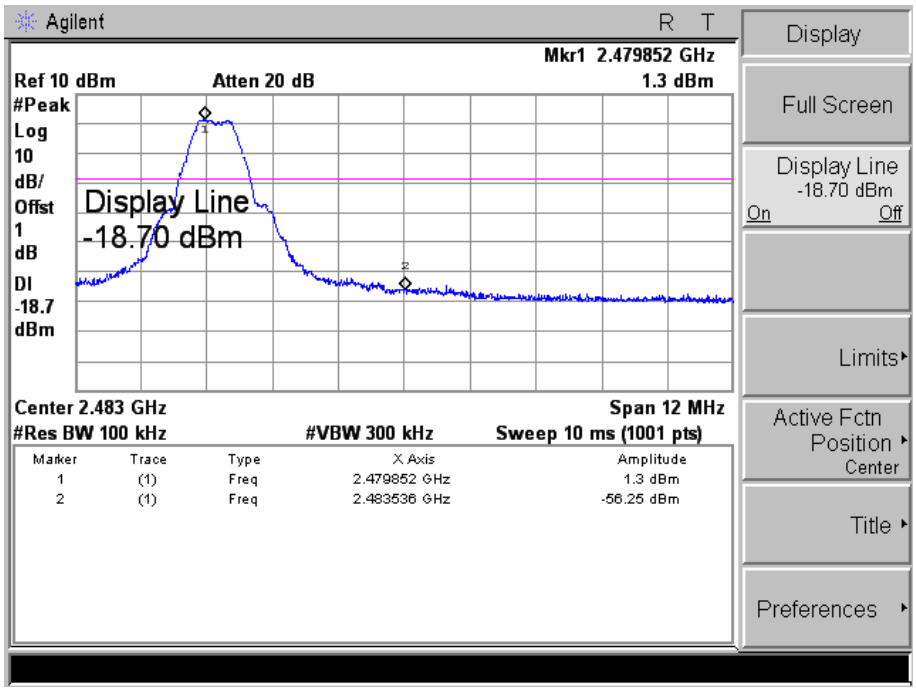
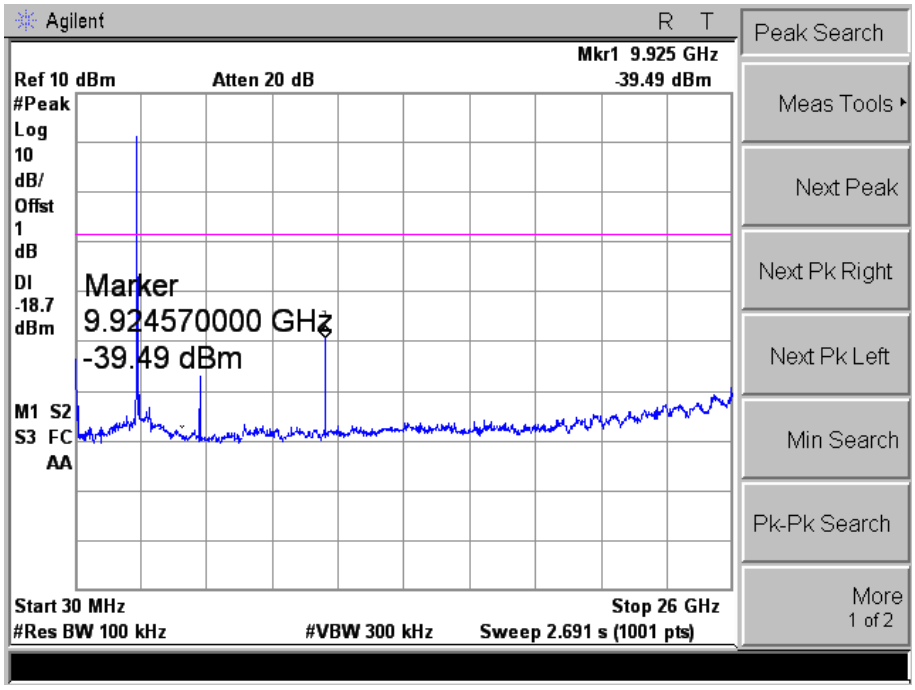


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2480.025	77.08	-9.32	67.76	/	/	Average Detector
	2480.325	78.14	-9.32	68.82	/	/	Peak Detector
2	2483.500	40.67	-9.31	31.36	54.00	-22.64	Average Detector
	2483.500	52.55	-9.31	43.24	74.00	-30.76	Peak Detector
3	2500.000	38.89	-9.28	29.61	54.00	-24.39	Average Detector
	2500.000	51.00	-9.28	41.72	74.00	-32.28	Peak Detector

➢ Conducted test

Low	
	

Middle	 Agilent R T Mkr1 2.439856 GHz Ref 10 dBm Atten 20 dB 0.864 dBm #Peak Log 10 dB/ Offst 1 dB Dl -19.1 dBm Display Line -19.14 dBm M1 S2 S3 FC AA Center 2.44 GHz Span 12 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Display Full Screen Display Line -19.14 dBm On Off Limits Active Fctn Position Center Title Preferences
	 Agilent R T Mkr1 9.769 GHz Ref 10 dBm Atten 20 dB -42.76 dBm #Peak Log 10 dB/ Offst 1 dB Dl -19.1 dBm Marker 9.768750000 GHz -42.76 dBm M1 S2 S3 FC AA Start 30 MHz Stop 26 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.691 s (1001 pts) Peak Search Meas Tools Next Peak Next Pk Right Next Pk Left Min Search Pk-Pk Search More 1 of 2

High	
	

******* END OF REPORT *******