ACCREDITED
Certificate # 3939.01

FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	Evoko Unlimited AB
Address:	Hastholmsvagen 32, 5th floor,Nacka ,Sweden, 131 30

Manufacturer or Supplier:	Shenzhen Baiqiancheng Electronic Co., Ltd
Address:	Room 609, Huihong Building, Building 18, Nanshan Ruiyuan, Shenzhen
Product:	Evoko Naso
Brand Name:	N/A
Model Name:	ENX1001
FCC ID:	2AH64-ENX1001
Date of tests:	Feb. 15, 2019 ~ Mar. 27, 2019

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**
☒ **ANSI C63.10-2013**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Issued by Evans He Engineer / Mobile Department	Approved by David Huang Manager / Mobile Department
Evans He	David Huang
Date: Mar. 27, 2019	Date: Mar. 27, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190215N004-1	Original release	Mar. 27, 2019

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.57dB at 0.1617MHz.
15.205 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -2.60dB at 40.4172MHz.
15.247(d)	Out of band Emission Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

NOTE: Test Lab Information:

Lab: Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

Test Lab Address: Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao'an District Shenzhen, Guangdong, 518108, People's Republic of China

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	3.11dB
Radiated emissions	9KHz ~ 30MHz	3.11dB
	30MHz ~ 1GMHz	5.12dB
	1GHz ~ 18GHz	5.34dB
	18GHz ~ 40GHz	5.02dB

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

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Evoko Naso
BRAND NAME	N/A
MODEL NAME	ENX1001
NOMINAL VOLTAGE	DC 5.2V from adapter or DC 48V from POE
MODULATION TECHNOLOGY	DSSS, OFDM, DTS
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 16QAM, QPSK, BPSK for OFDM BT-LE(GFSK) for DTS
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n: up to 135 Mbps BT_LE: 1 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2402-2480MHz for BT-LE(GFSK)
MAX. PEAK OUTPUT POWER	WLAN: 165.20mW (Maximum) BT-LE: 13.37mW (Maximum)
ANTENNA TYPE	Fixed Internal Antenna with 0.1dBi gain
HW VERSION	v3.0.0
SW VERSION	Queens_TA_v1.0
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	DC Line: Unshielded, Detachable 2.4m

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: 190215N004) for detailed product photo.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX /1RX
802.11g	1TX /1RX
802.11n (20MHz)	1TX /1RX
BT_LE	1TX /1RX

4. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	N/A
MODEL:	S018-1A052240D5
INPUT:	AC 100-240V~50/60Hz, 0.6A
OUTPUT:	DC 5.2V, 2.4A

5. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

2.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

40 channels are provided for BT-LE (GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	**Powered by DC 5.2V from adapter with (WIFI + BLE) function**

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	39	DTS	GFSK	1

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0,19, 39	DTS	GFSK	1

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0, 39	DTS	GFSK	1

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0, 39	DTS	GFSK	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	26deg. C, 57%RH	DC 5.2V from adaptor	Evans He
RE≥1G	26deg. C, 57%RH	DC 5.2V from adaptor	Evans He
PLC	25deg. C, 56%RH	DC 5.2V from adaptor	Aaron Liang
APCM	25deg. C, 56%RH	DC 5.2V from adaptor	Aaron Liang

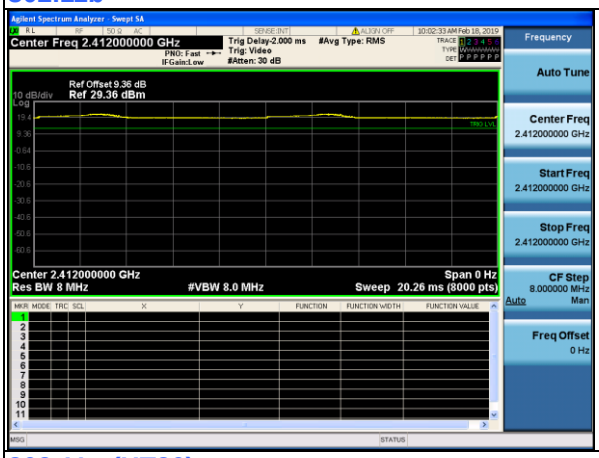
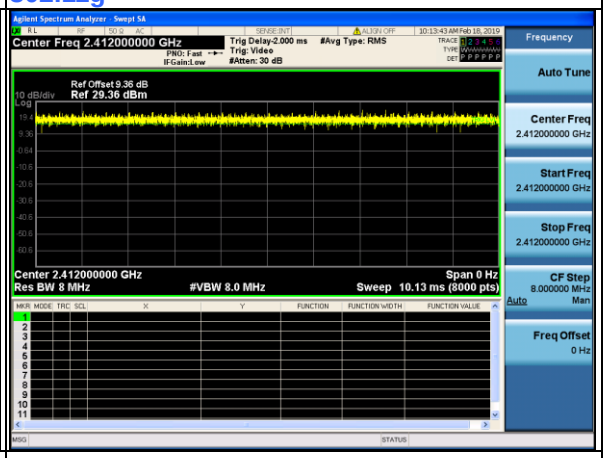
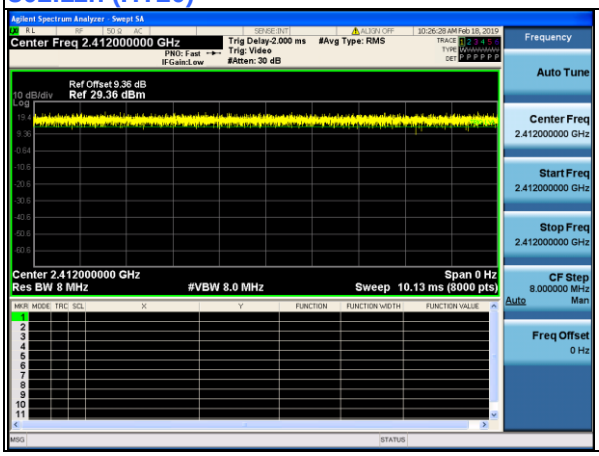
2.3 Duty Cycle of Test Signal

WIFI 2.4GHz

802.11b: Duty cycle = 100%, Duty factor = 0

802.11g: Duty cycle = 100%, Duty factor = 0

802.11n (HT20): Duty cycle = 100%, Duty factor = 0

802.11b	802.11g
	
802.11n (HT20)	
	

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v04

ANSI C63.10-2013

Note：

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	E40	LR-1EHRX	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, 2m

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Instrument	Model	Serial #	Cal Date	Cal Due
EMI test receiver	ESCS30	8471241027	Jan. 04, 2019	Jan. 03, 2020
Line Impedance Stabilization Network	LI-125A	191106	Dec. 07, 2018	Dec. 06, 2019
Line Impedance Stabilization Network	LI-125A	191106	Dec. 07, 2018	Dec. 06, 2019
Line Impedance Stabilization Network	LI-125A	191107	Dec. 07, 2018	Dec. 06, 2019
Line Impedance Stabilization Network	LI-125A	191107	Dec. 07, 2018	Dec. 06, 2019
Test Software	EZ-EMC	ver.Icp-03A1	N/A	N/A

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

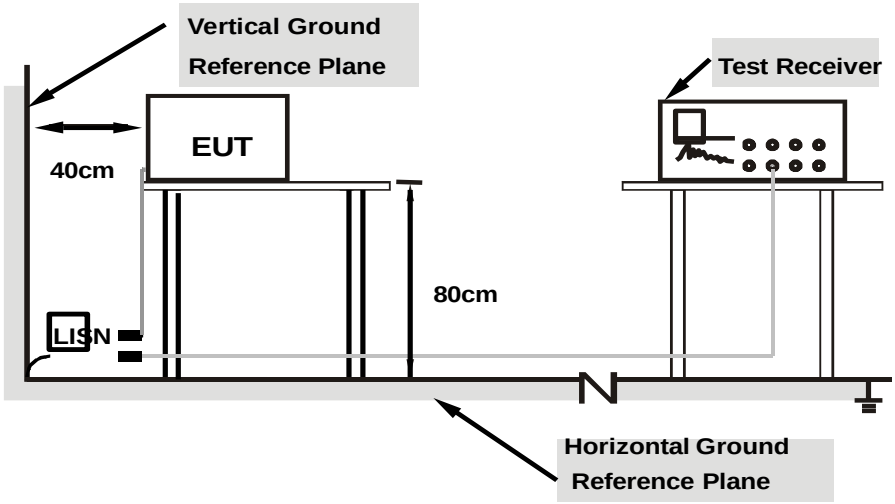
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

3.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

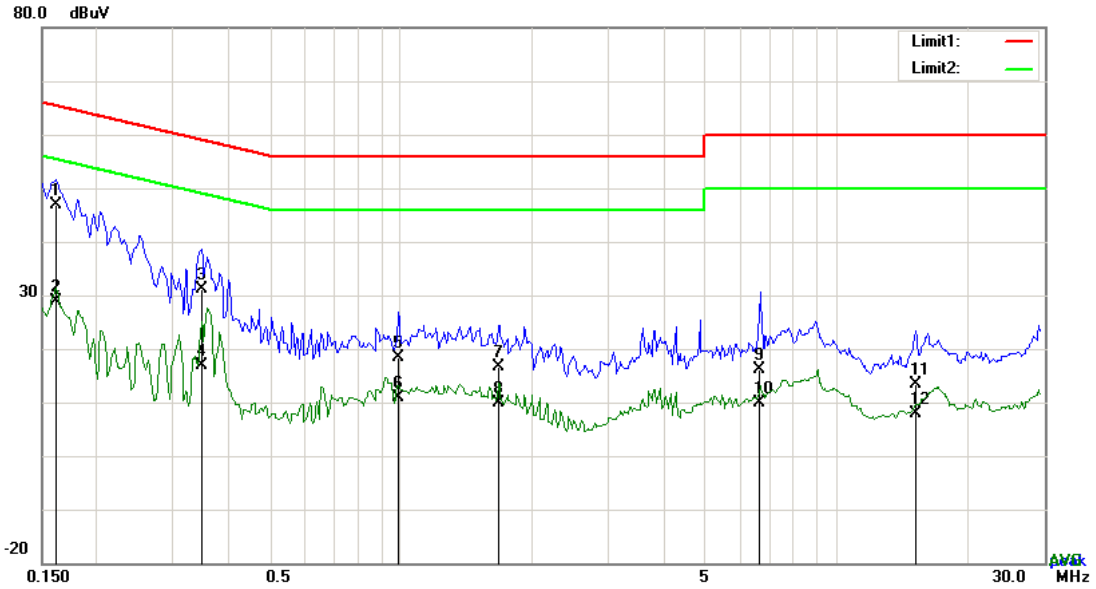
3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	27.9deg. C, 61RH
Tested By	Evans He	**TEST DATE**	2019/02/25

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	**L1**	**0.1617**	**36.78**	**QP**	**10.03**	**46.81**	**65.38**	**-18.57**
2	L1	0.1617	18.92	AVG	10.03	28.95	55.38	-26.43
3	L1	0.3489	21.00	QP	10.03	31.03	58.99	-27.96
4	L1	0.3489	6.89	AVG	10.03	16.92	48.99	-32.07
5	L1	0.9846	8.36	QP	10.03	18.39	56.00	-37.61
6	L1	0.9846	0.85	AVG	10.03	10.88	46.00	-35.12
7	L1	1.6788	6.68	QP	10.04	16.72	56.00	-39.28
8	L1	1.6788	-0.23	AVG	10.04	9.81	46.00	-36.19
9	L1	6.6272	5.93	QP	10.10	16.03	60.00	-43.97
10	L1	6.6272	-0.25	AVG	10.10	9.85	50.00	-40.15
11	L1	15.1602	3.18	QP	10.23	13.41	60.00	-46.59
12	L1	15.1602	-2.35	AVG	10.23	7.88	50.00	-42.12

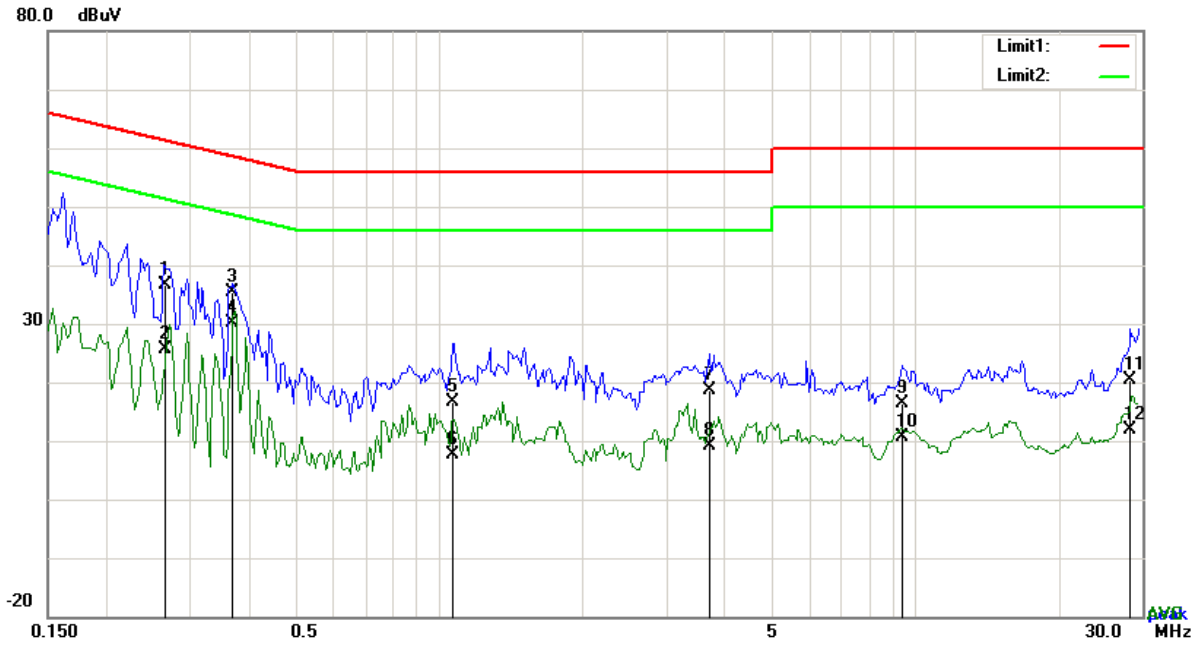
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	27.9deg. C, 61RH
Tested By	Evans He	**TEST DATE**	2019/02/25

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB}	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	N	0.2644	26.61	QP	10.02	36.63	61.29	-24.66
2	N	0.2644	15.60	AVG	10.02	25.62	51.29	-25.67
3	N	0.3684	25.28	QP	10.02	35.30	58.54	-23.24
4	N	0.3684	20.06	AVG	10.02	30.08	48.54	-18.46
5	N	1.0704	6.71	QP	10.03	16.74	56.00	-39.26
6	N	1.0704	-2.44	AVG	10.03	7.59	46.00	-38.41
7	N	3.6903	8.47	QP	10.06	18.53	56.00	-37.47
8	N	3.6903	-0.88	AVG	10.06	9.18	46.00	-36.82
9	N	9.3687	6.29	QP	10.13	16.42	60.00	-43.58
10	N	9.3687	0.60	AVG	10.13	10.73	50.00	-39.27
11	N	28.4280	9.90	QP	10.39	20.29	60.00	-39.71
12	N	28.4280	1.50	AVG	10.39	11.89	50.00	-38.11

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K06-100262-eQ	Jan. 04, 2019	Jan. 03, 2020
Bilog Antenna	Sunol Sciences	JB6	A110712	Feb. 07, 2019	Feb. 06, 2020
Signal Amplifier	HP	8447E	443008	Jan. 24, 2019	Jan. 23, 2020
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 18, 2018	Oct. 17, 2019
MXA signal analyzer	Agilent	N9020A	MY49100060	Jan. 04, 2019	Jan. 03, 2020
Horn Antenna	COM-POWER	HAH-118	71259	Jan. 25, 2019	Jan. 24, 2020
Horn Antenna	COM-POWER	HAH-118	71283	Feb. 01, 2019	Jan 31, 2020
AMPLIFIER	EM Electornic Corporation	EM01G26G	60613	Jan. 24, 2019	Jan. 23, 2020
AMPLIFIER	Emc Instruments Corporation	Emc012645	980077	Jan. 04, 2019	Jan. 03, 2020
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 749762.

3.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. 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 from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

Note:

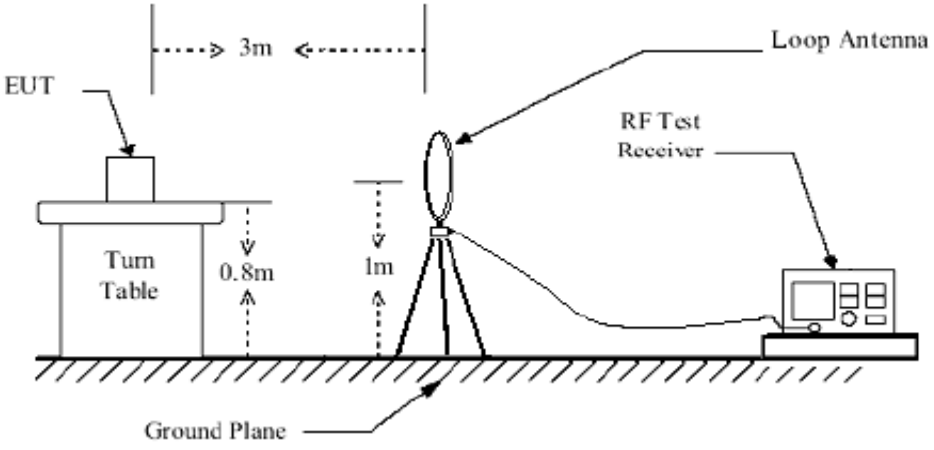
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

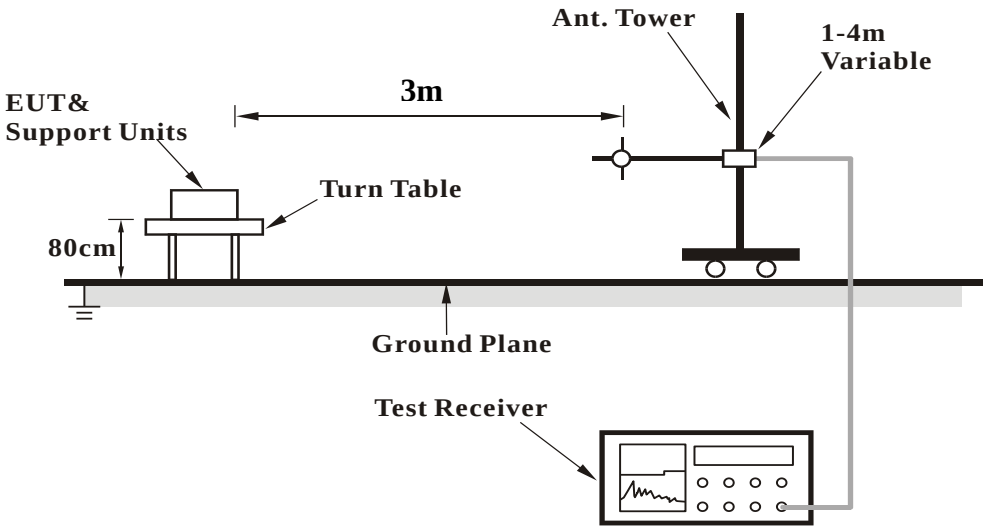
No deviation

3.2.5 TEST SETUP

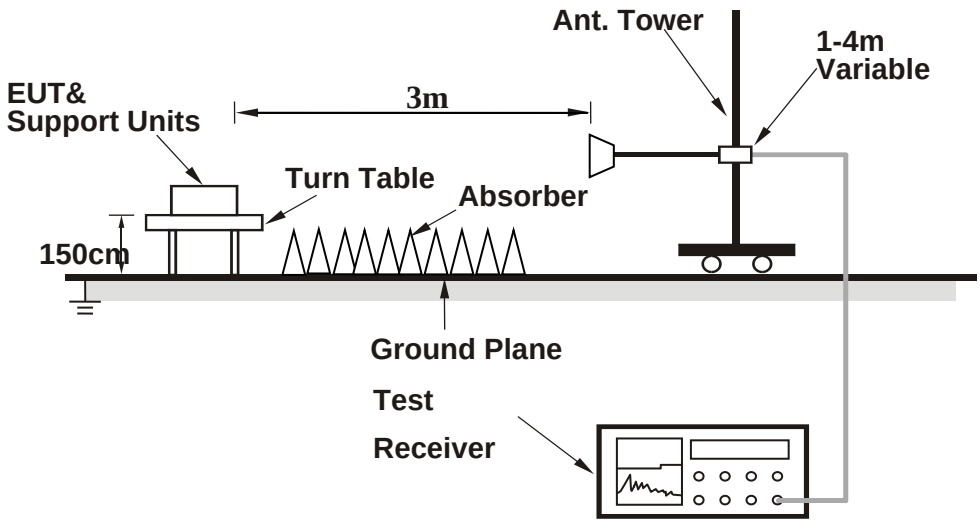
< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.6 EUT OPERATING CONDITIONS

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

9 KHz – 30 KHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

30 MHz – 1GHz data:

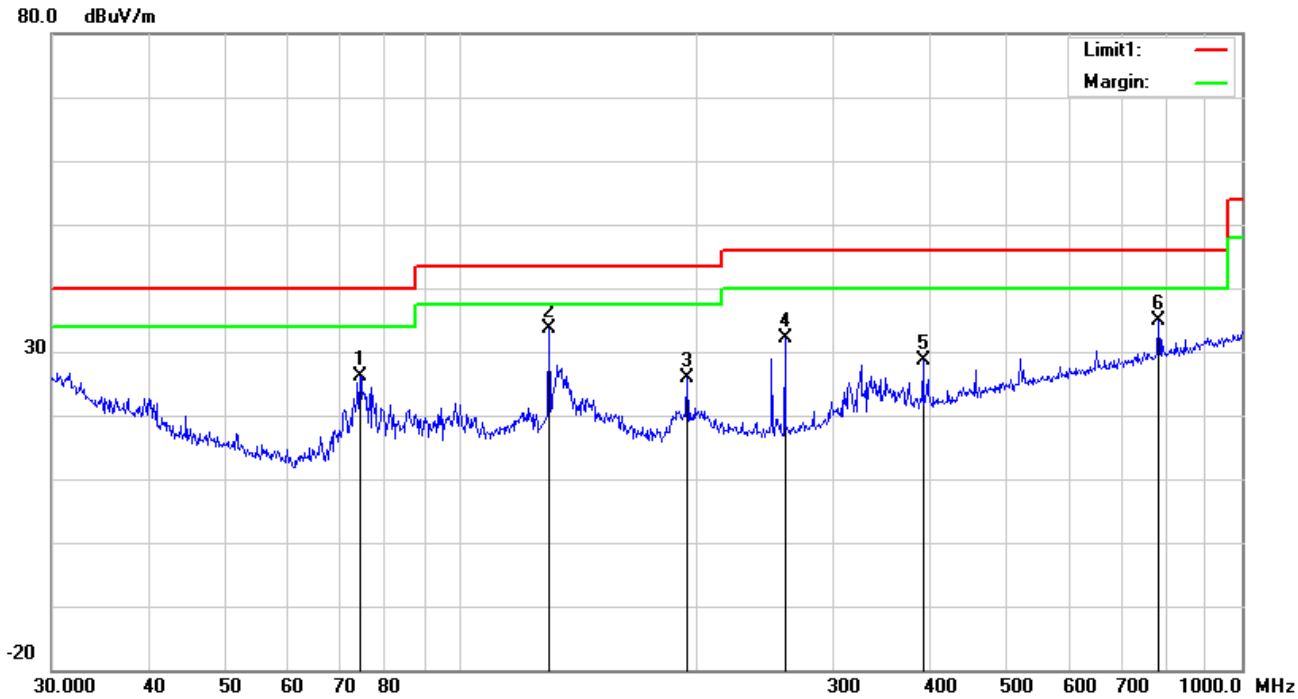
802.11g

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	74.3955	39.96	7.71	22.40	0.96	26.23	40.00	-13.77	100	331
2	129.9226	41.65	13.26	22.38	1.20	33.73	43.50	-9.77	200	38
3	195.1365	34.76	11.83	22.35	1.54	25.78	43.50	-17.72	100	14
4	260.1444	40.85	11.85	22.29	1.72	32.13	46.00	-13.87	100	55
5	390.7226	33.09	15.51	22.04	2.02	28.58	46.00	-17.42	100	208
6	782.3453	31.99	21.19	21.19	2.93	34.92	46.00	-11.08	100	23

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.

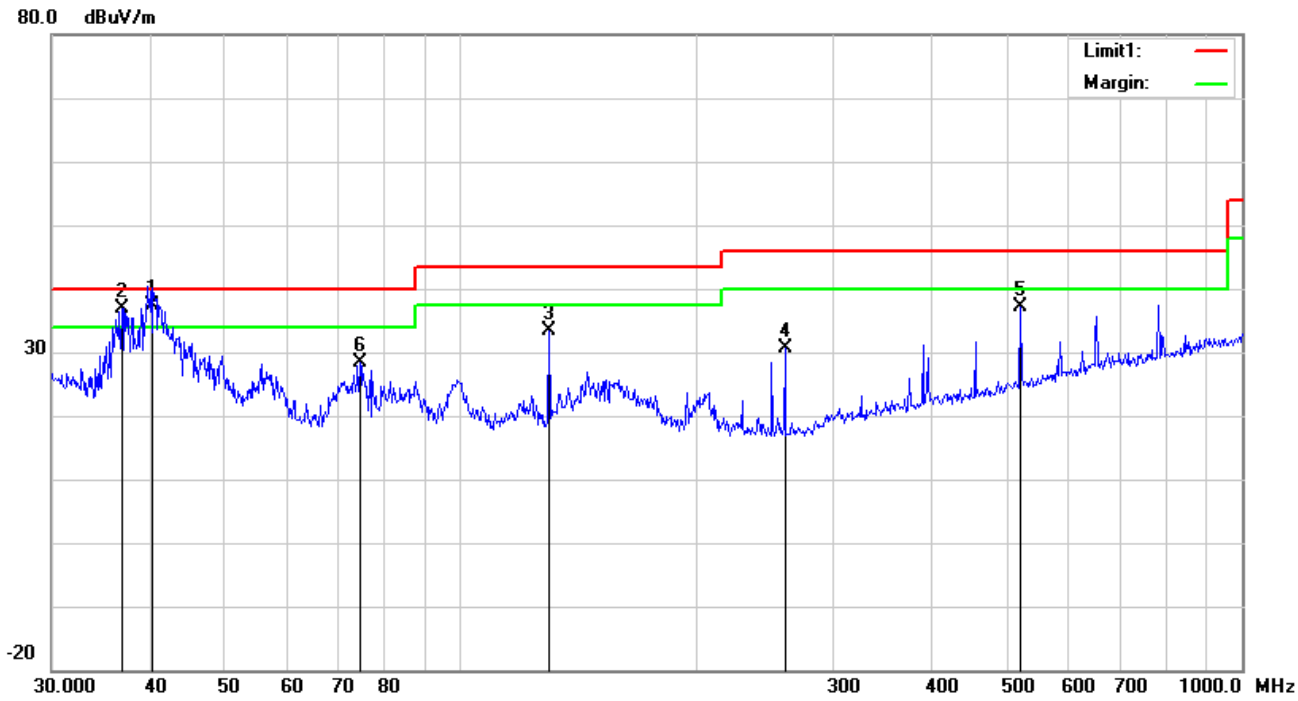


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	**40.4172**	**45.27**	**13.62**	**22.28**	**0.79**	**37.40**	**40.00**	**-2.60**	**100**	**90**
2	36.8953	42.28	16.17	22.26	0.77	36.96	40.00	-3.04	100	205
3	129.9226	41.24	13.26	22.38	1.20	33.32	43.50	-10.18	100	222
4	260.1444	39.28	11.85	22.29	1.72	30.56	46.00	-15.44	100	356
5	520.8882	38.37	17.99	21.76	2.45	37.05	46.00	-8.95	100	297
6	74.3955	42.00	7.71	22.40	0.96	28.27	40.00	-11.73	100	198

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.



ABOVE 1GHz WORST-CASE DATA:

Note: For higher frequency, the emission is too low to be detected.

802.11g

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4824	49.7	AV	V	33.39	7.22	48.46	41.85	54	-12.15
4824	43.18	AV	H	33.39	7.22	48.46	35.33	54	-18.67
4824	69.95	PK	V	33.39	7.22	48.46	62.1	74	-11.9
4824	64.27	PK	H	33.39	7.22	48.46	56.42	74	-17.58
12709	39.22	AV	V	40.47	9.55	47.01	42.23	54	-11.77
12709	31.45	AV	H	40.47	9.55	47.01	34.46	54	-19.54
12709	55.63	PK	V	40.47	9.55	47.01	58.64	74	-15.36
12709	53.85	PK	H	40.47	9.55	47.01	56.86	74	-17.14

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2412MHz: Fundamental frequency.

CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4874	44.24	AV	V	33.62	7.53	48.36	37.03	54	-16.97
4874	43	AV	H	33.62	7.53	48.36	35.79	54	-18.21
4874	65.31	PK	V	33.62	7.53	48.36	58.1	74	-15.9
4874	63.85	PK	H	33.62	7.53	48.36	56.64	74	-17.36
7273	45.02	AV	V	37.59	8.29	50.03	40.87	54	-13.13
7273	38.77	AV	H	37.59	8.29	50.03	34.62	54	-19.38
7273	63.12	PK	V	37.59	8.29	50.03	58.97	74	-15.03
7273	66.3	PK	H	37.59	8.29	50.03	62.15	74	-11.85

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4924	44.08	AV	V	33.74	7.78	48.34	37.26	54	-16.74
4924	46.82	AV	H	33.74	7.78	48.34	40	54	-14
4924	71.59	PK	V	33.74	7.78	48.34	64.77	74	-9.23
4924	64.39	PK	H	33.74	7.78	48.34	57.57	74	-16.43
17905	26	AV	V	42.47	19.64	43.81	44.3	54	-9.7
17905	17.73	AV	H	42.47	19.64	43.81	36.03	54	-17.97
17905	37.56	PK	V	42.47	19.64	43.81	55.86	74	-18.14
17905	39.16	PK	H	42.47	19.64	43.81	57.46	74	-16.54

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA:

9 KHz – 30 KHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

30 MHz – 1GHz data:

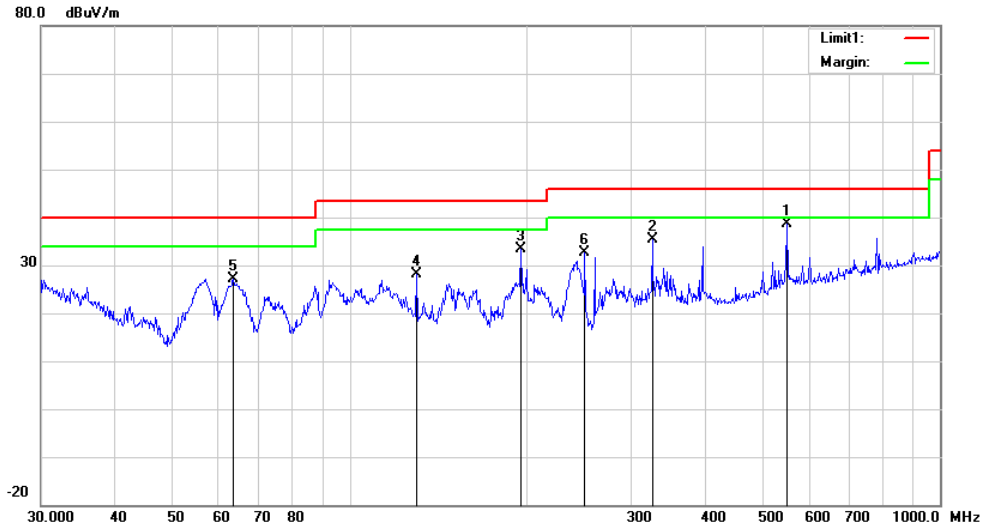
BT-LE (GFSK)

CHANNEL	TX Channel 39	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	550.9480	39.43	18.41	21.69	2.48	38.63	46.00	-7.37	100	175
2	325.5958	41.53	14.14	22.22	1.92	35.37	46.00	-10.63	100	131
3	195.1365	42.44	11.83	22.35	1.54	33.46	43.50	-10.04	100	229
4	129.9226	36.15	13.26	22.38	1.20	28.23	43.50	-15.27	200	116
5	63.5356	41.22	7.48	22.40	0.84	27.14	40.00	-12.86	100	239
6	250.3012	41.72	11.41	22.29	1.70	32.54	46.00	-13.46	100	147

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

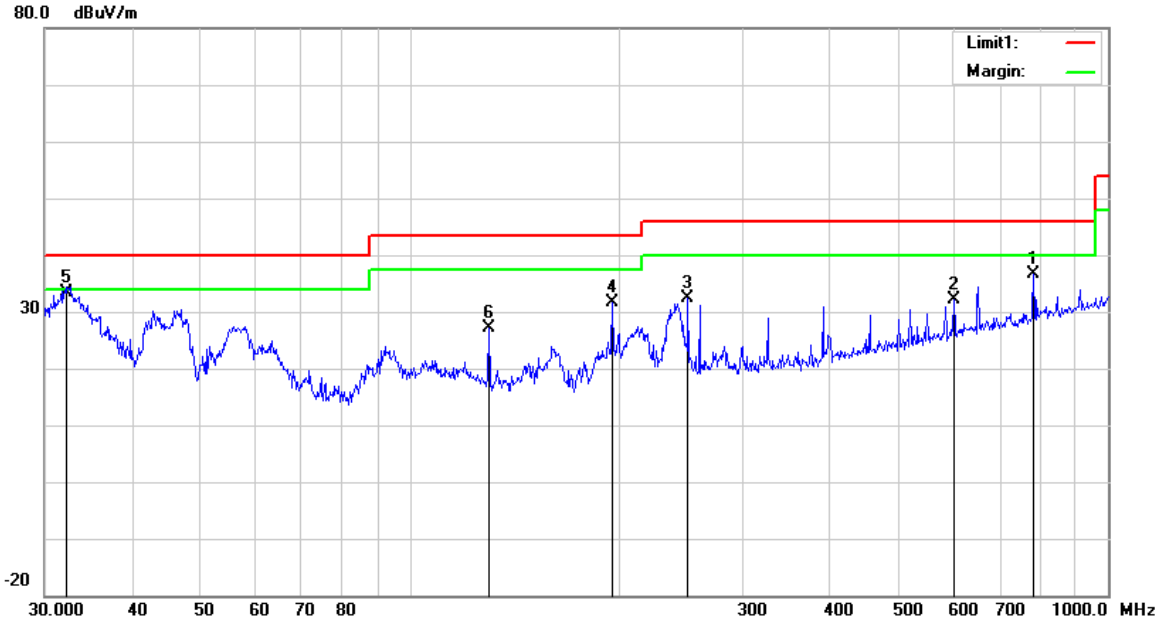


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	782.3453	33.61	21.19	21.19	2.93	36.54	46.00	-9.46	100	335
2	601.4265	32.19	19.12	21.58	2.49	32.22	46.00	-13.78	100	193
3	250.3012	41.52	11.41	22.29	1.70	32.34	46.00	-13.66	100	177
4	195.1365	40.65	11.83	22.35	1.54	31.67	43.50	-11.83	200	125
5	32.2925	35.41	19.63	22.27	0.68	33.45	40.00	-6.55	100	72
6	129.9226	35.11	13.26	22.38	1.20	27.19	43.50	-16.31	100	139

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



ABOVE 1GHz TEST DATA:

Note: For higher frequency, the emission is too low to be detected.

BT-LE (GFSK)

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4804	43.95	AV	V	33.39	7.22	48.46	36.1	54	-17.9
4804	40.63	AV	H	33.39	7.22	48.46	32.78	54	-21.22
4804	57.8	PK	V	33.39	7.22	48.46	49.95	74	-24.05
4804	54.28	PK	H	33.39	7.22	48.46	46.43	74	-27.57
7206	43.25	AV	V	38.17	8.72	47.86	42.28	54	-11.72
7206	42.54	AV	H	38.17	8.72	47.86	41.57	54	-12.43
7206	55.44	PK	V	38.17	8.72	47.86	54.47	74	-19.53
7206	51.24	PK	H	38.17	8.72	47.86	50.27	74	-23.73
2386	52.74	AV	V	30.24	4.87	47.25	40.6	54	-13.4
2386	47.13	AV	H	30.24	4.87	47.25	34.99	54	-19.01
2386	65.04	PK	V	30.24	4.87	47.25	52.9	74	-21.1
2386	61.54	PK	H	30.24	4.87	47.25	49.4	74	-24.6

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.
3. X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.
4. The radiated spurious test above 18GHz is subcontracted to Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch Laboratories and found 30dB below the limit at least.

CHANNEL	TX Channel 19	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4880	39.5	AV	V	33.62	7.53	48.36	32.29	54	-21.71
4880	48.8	AV	H	33.62	7.53	48.36	41.59	54	-12.41
4880	62.06	PK	V	33.62	7.53	48.36	54.85	74	-19.15
4880	66.91	PK	H	33.62	7.53	48.36	59.7	74	-14.3
5618	39.27	AV	V	38.81	9.6	49.15	38.53	54	-15.47
5618	41.44	AV	H	38.81	9.6	49.15	40.7	54	-13.3
5618	56.29	PK	V	38.81	9.6	49.15	55.55	74	-18.45
5618	55.17	PK	H	38.81	9.6	49.15	54.43	74	-19.57

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.
3. X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.
4. The radiated spurious test above 18GHz is subcontracted to Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch Laboratories and found 30dB below the limit at least.

CHANNEL	TX Channel 39	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Frequency (MHz)	S.A. Reading (dBμV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4960	47.52	AV	V	33.89	7.86	48.31	40.96	54	-13.04
4960	45.15	AV	H	33.89	7.86	48.31	38.59	54	-15.41
4960	59.57	PK	V	33.89	7.86	48.31	53.01	74	-20.99
4960	57.33	PK	H	33.89	7.86	48.31	50.77	74	-23.23
17158	22.7	AV	V	42.64	19.66	44.4	40.6	54	-13.4
17158	24.99	AV	H	42.64	19.66	44.4	42.89	54	-11.11
17158	46.18	PK	V	42.64	19.66	44.4	64.08	74	-9.92
17158	40.79	PK	H	42.64	19.66	44.4	58.69	74	-15.31
2483.5	55.39	AV	V	29.98	5.83	47.51	43.69	54	-10.31
2483.5	48.4	AV	H	29.98	5.83	47.51	36.7	54	-17.3
2483.5	68.67	PK	V	29.98	5.83	47.51	56.97	74	-17.03
2483.5	63.85	PK	H	29.98	5.83	47.51	52.15	74	-21.85

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.
3. X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.
4. The radiated spurious test above 18GHz is subcontracted to Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch Laboratories and found 30dB below the limit at least.

3.3 6 dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST INSTRUMENTS

Instrument	Model	Serial #	Cal Date	Cal Due
DC Power Supply	E3640A	MY40004013	Jan. 04, 2019	Jan. 03, 2020
MXA Signal Analyzer	N9020A	MY49100060	Jan. 04, 2019	Jan. 03, 2020
MXG Vector Signal Generator	N5182A	MY50140530	Jan. 04, 2019	Jan. 03, 2020
Series Signal Generator	E4421B	US40051152	May 12, 2018	May 11, 2019
RF control unit	JS0806-0806-2	188060112	Apr. 25, 2018	Apr. 24, 2019
Wireless Connectivity Tester	CMW270	1201.0002K75-101601-PE	Apr. 25, 2018	Apr. 24, 2019
Test Software	EZ-EMC	ver.Icp-03A1	N/A	N/A

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

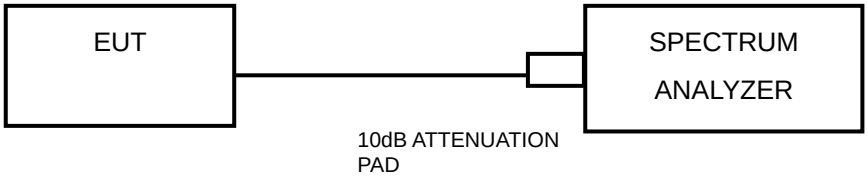
3.3.3 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



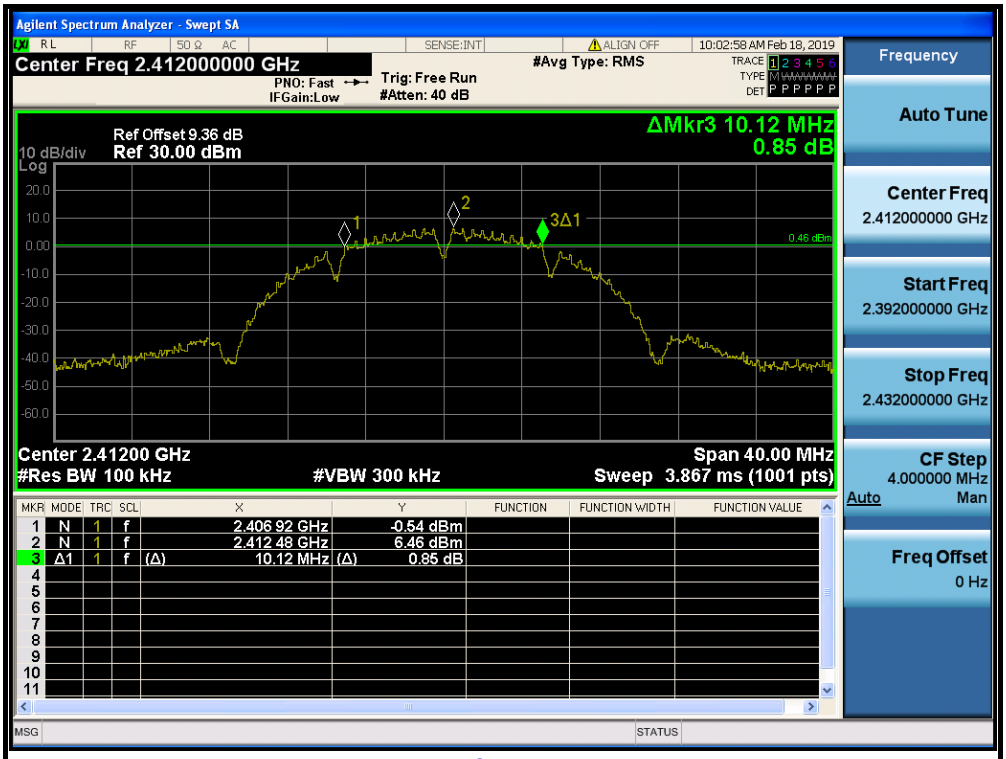
3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

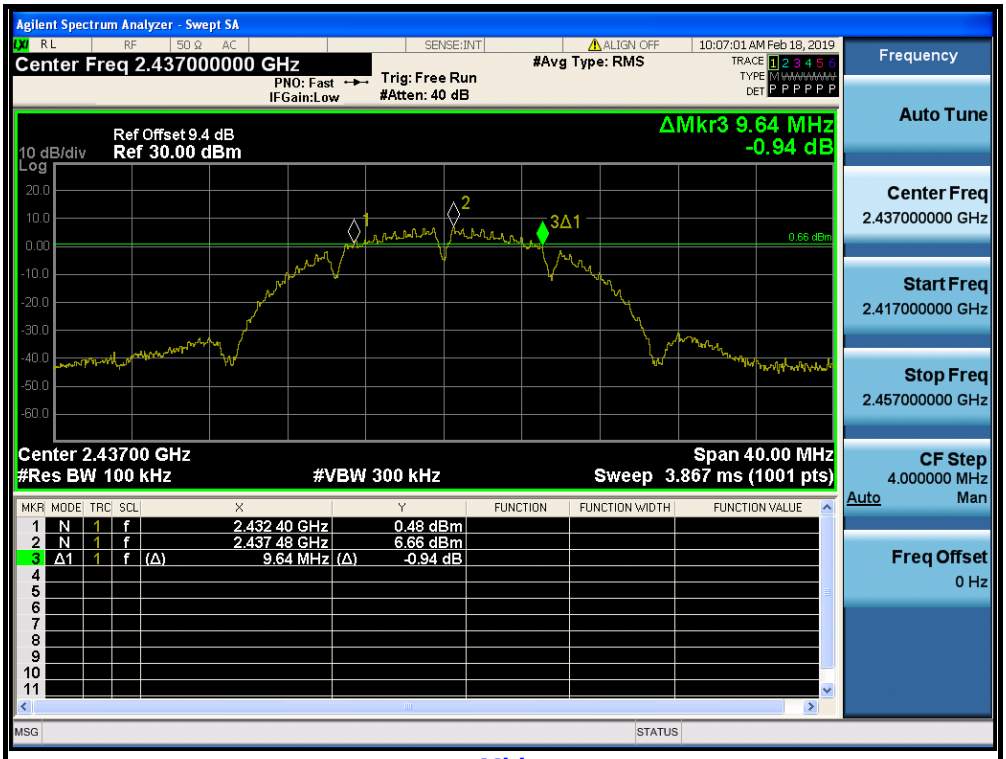
3.3.7 TEST RESULTS

802.11b

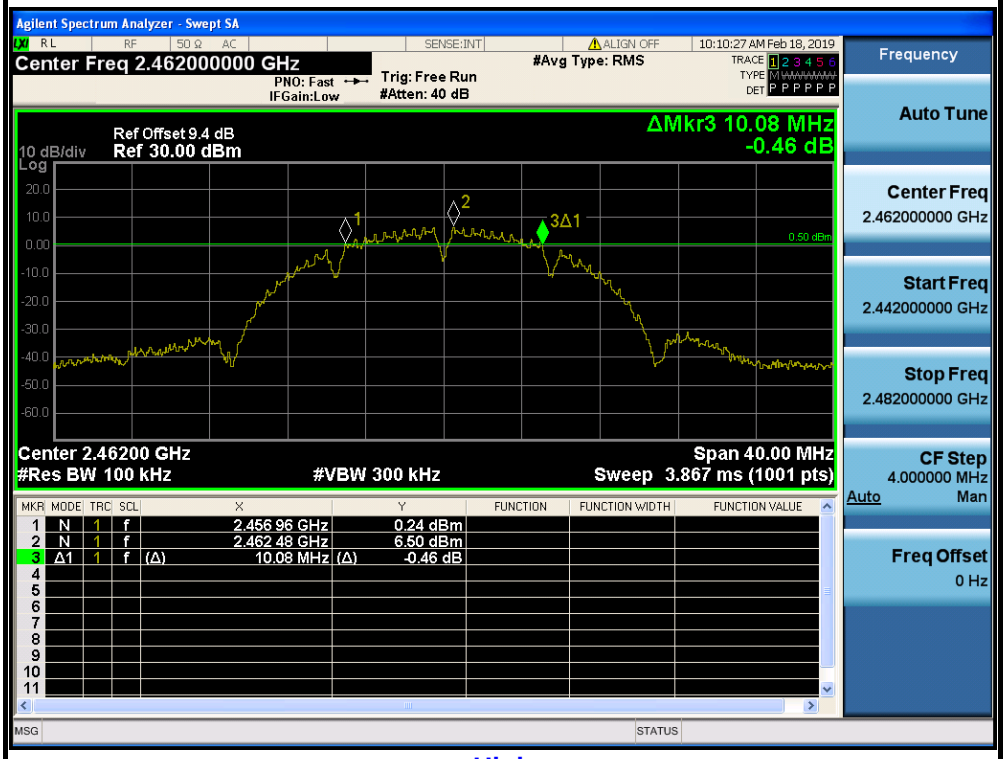
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.12	0.5	PASS
6	2437	9.64	0.5	PASS
11	2462	10.08	0.5	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:07:01 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 9.64 MHz
-0.94 dB
Center 2.43700 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.432 40 GHz 0.48 dBm
2 N 1 f 2.437 48 GHz 6.66 dBm
3 Δ1 1 f (Δ) 9.64 MHz (Δ) -0.94 dB
Frequency
Auto Tune
Center Freq 2.437000000 GHz
Start Freq 2.417000000 GHz
Stop Freq 2.457000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

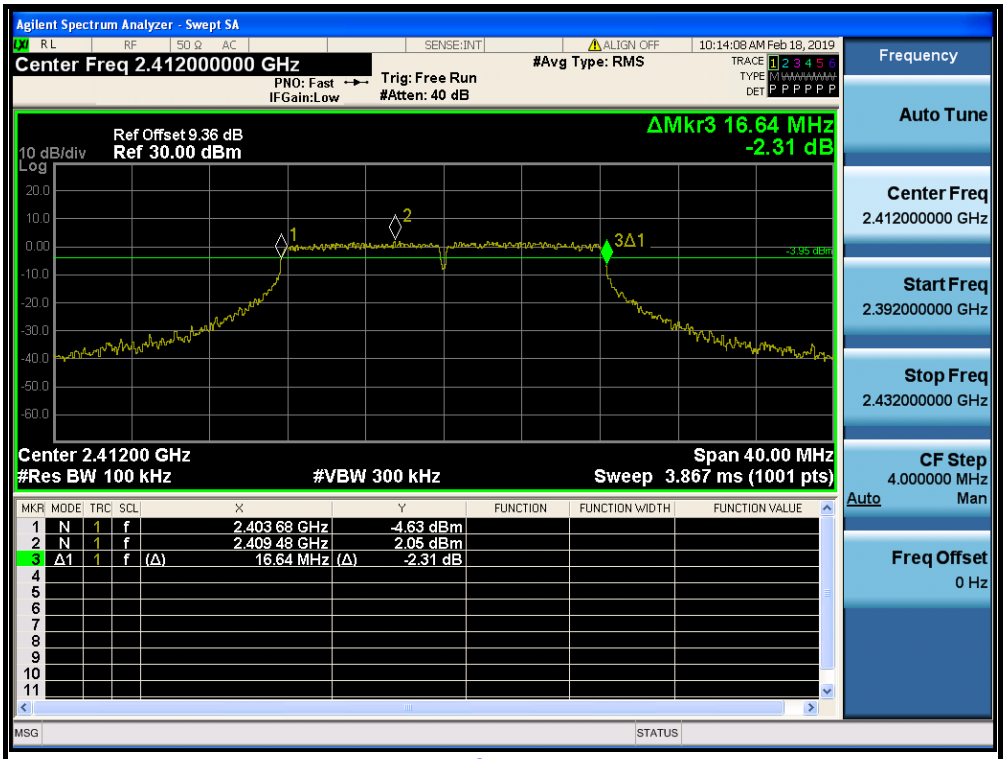
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:10:27 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 10.08 MHz
-0.46 dB
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.456 96 GHz 0.24 dBm
2 N 1 f 2.462 48 GHz 6.50 dBm
3 Δ1 1 f (Δ) 10.08 MHz (Δ) -0.46 dB
Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.442000000 GHz
Stop Freq 2.482000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

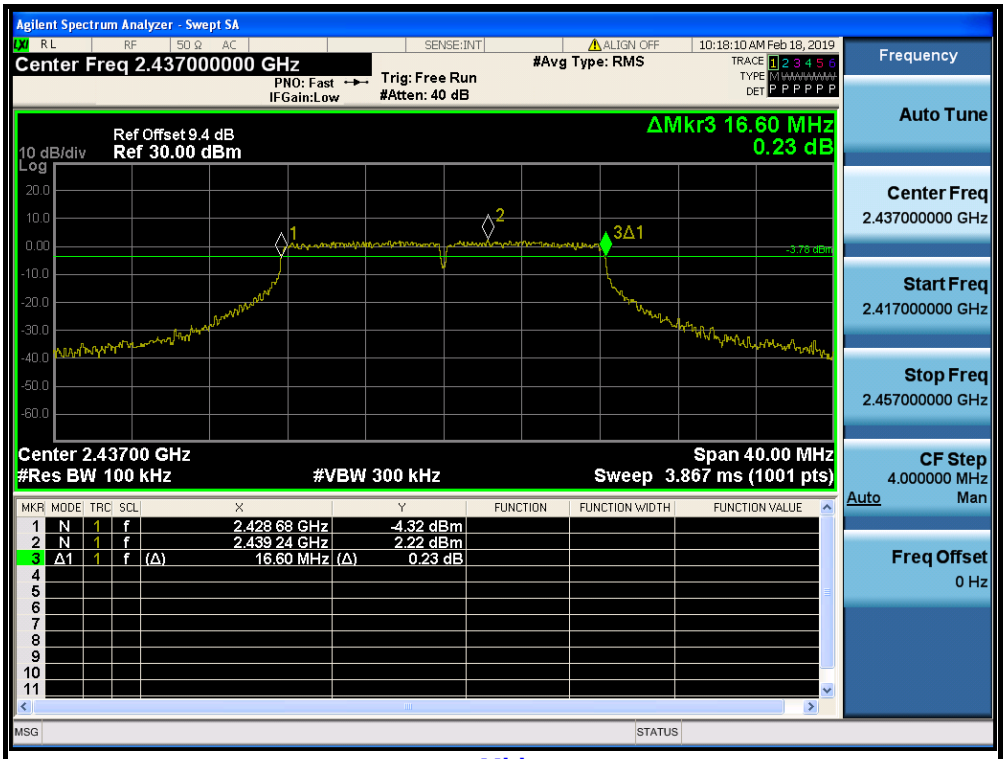
High

802.11g

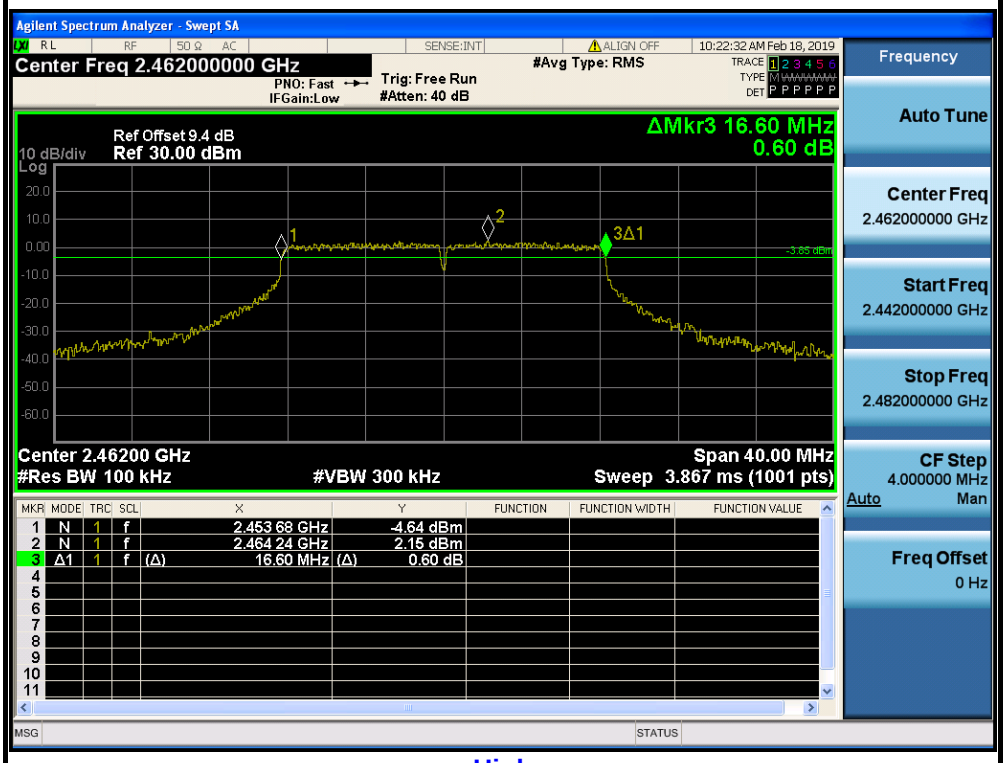
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.64	0.5	PASS
6	2437	16.60	0.5	PASS
11	2462	16.60	0.5	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:18:10 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 16.60 MHz
0.23 dB
Center 2.43700 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.428 68 GHz -4.32 dBm
2 N 1 f 2.439 24 GHz 2.22 dBm
3 Δ1 1 f (Δ) 16.60 MHz (Δ) 0.23 dB
Frequency
Auto Tune
Center Freq 2.437000000 GHz
Start Freq 2.417000000 GHz
Stop Freq 2.457000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

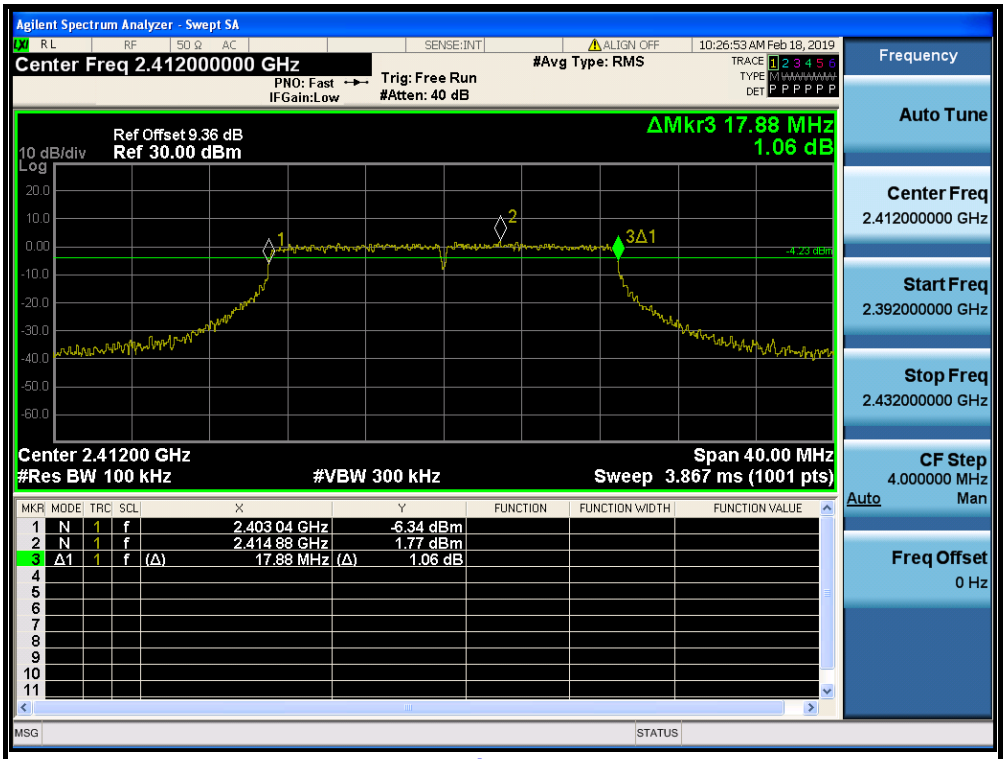
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:22:32 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 16.60 MHz
0.60 dB
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.453 68 GHz -4.64 dBm
2 N 1 f 2.464 24 GHz 2.15 dBm
3 Δ1 1 f (Δ) 16.60 MHz (Δ) 0.60 dB
Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.442000000 GHz
Stop Freq 2.482000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

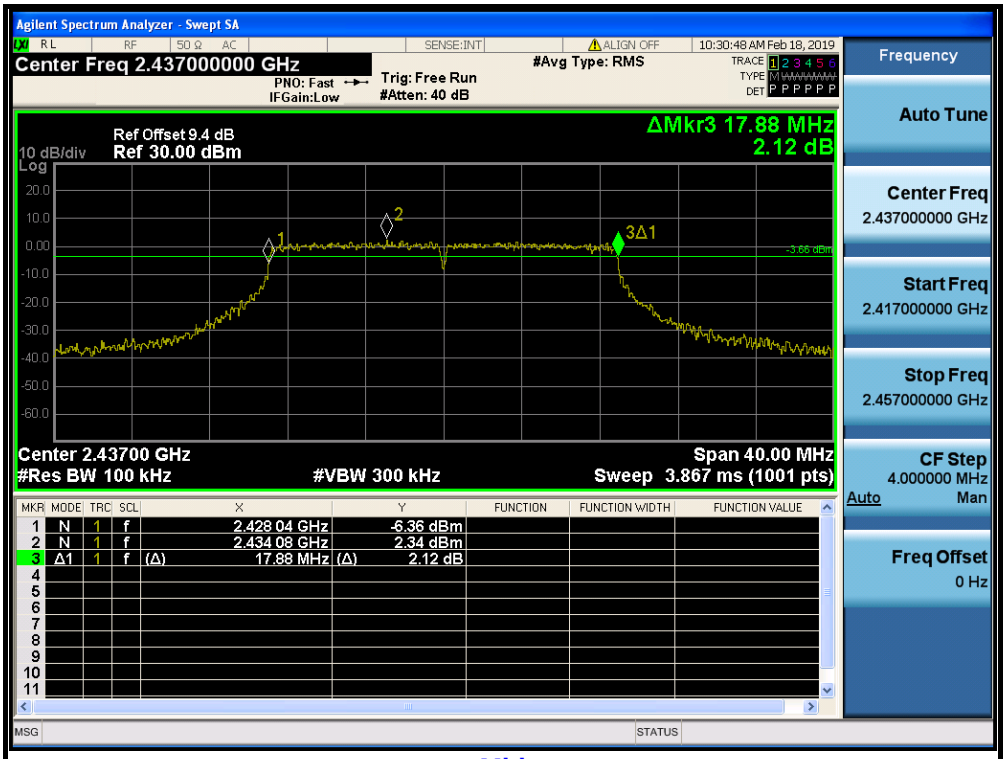
High

802.11n (20MHz)

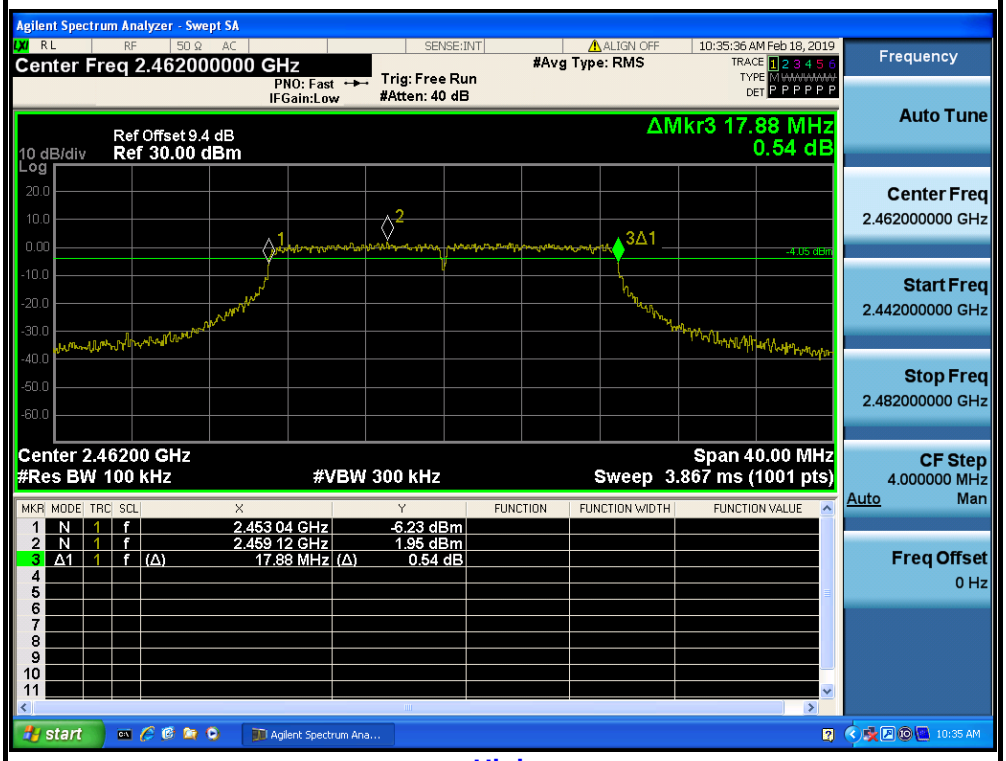
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.88	0.5	PASS
6	2437	17.88	0.5	PASS
11	2462	17.88	0.5	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:30:48 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 17.88 MHz
2.12 dB
Center 2.43700 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.428 04 GHz -6.36 dBm
2 N 1 f 2.434 08 GHz 2.34 dBm
3 Δ1 1 f (Δ) 17.88 MHz (Δ) 2.12 dB
Frequency
Auto Tune
Center Freq 2.437000000 GHz
Start Freq 2.417000000 GHz
Stop Freq 2.457000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

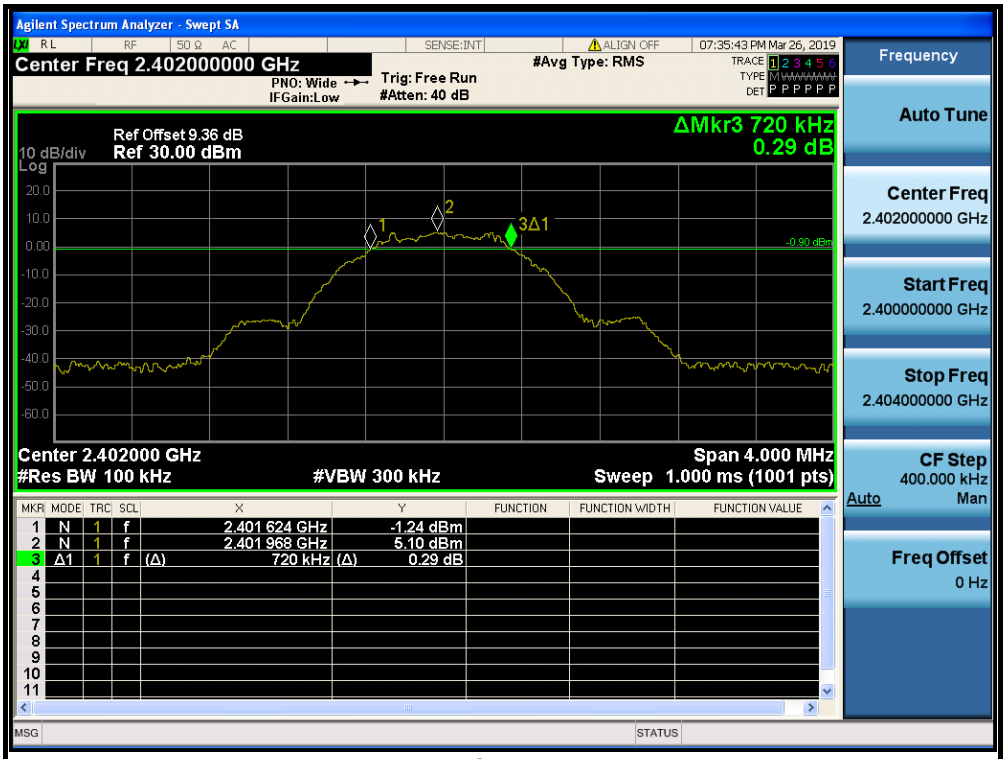
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
10:35:36 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 17.88 MHz
0.54 dB
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.453 04 GHz -6.23 dBm
2 N 1 f 2.459 12 GHz 1.95 dBm
3 Δ1 1 f (Δ) 17.88 MHz (Δ) 0.54 dB
Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.442000000 GHz
Stop Freq 2.482000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

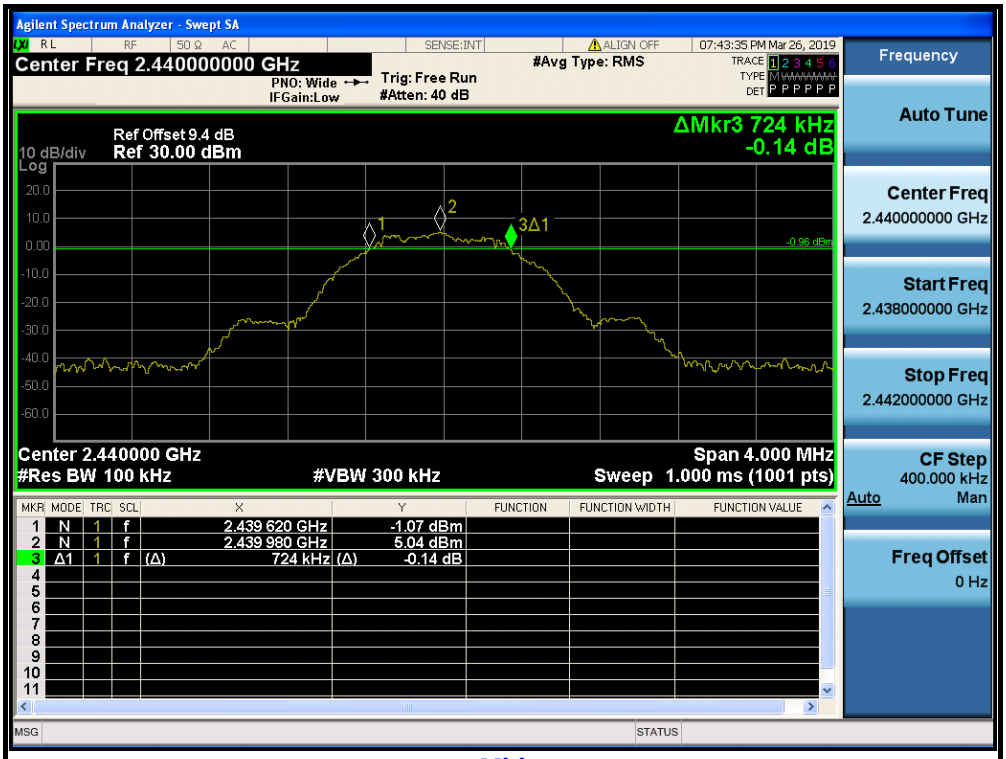
High

BT-LE (GFSK)

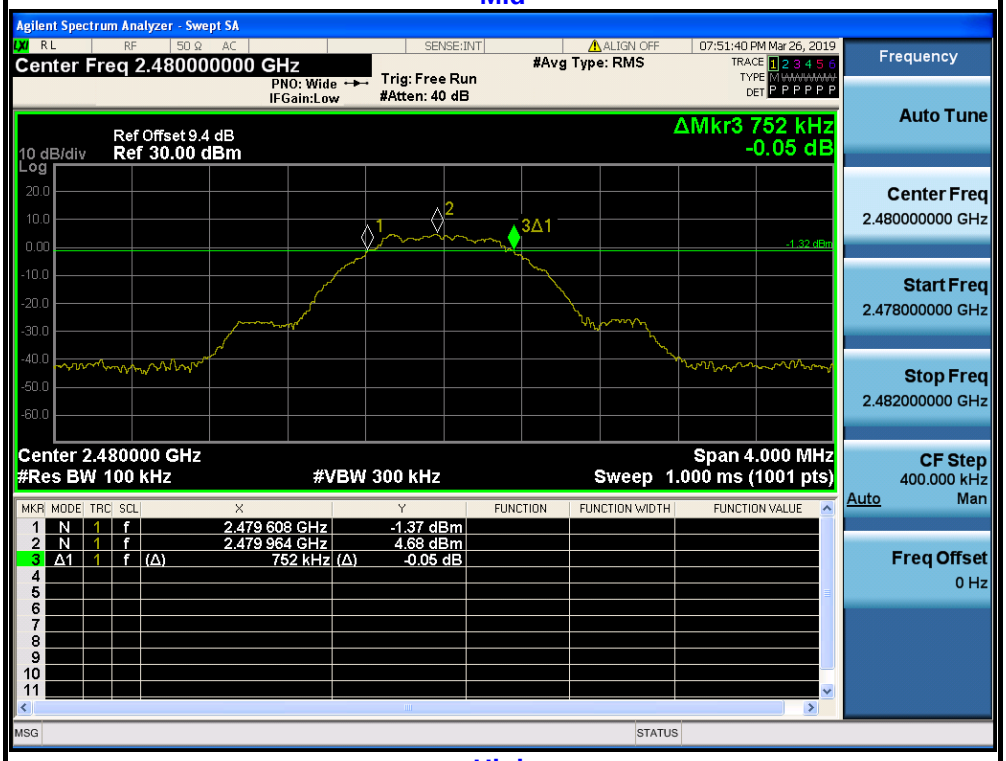
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.720	0.5	PASS
19	2440	0.724	0.5	PASS
39	2480	0.752	0.5	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.440000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
07:43:35 PM Mar 26, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 724 kHz
-0.14 dB
Center 2.440000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.439 620 GHz -1.07 dBm
2 N 1 f 2.439 980 GHz 5.04 dBm
3 Δ1 1 f (Δ) 724 kHz (Δ) -0.14 dB
Frequency
Auto Tune
Center Freq 2.440000000 GHz
Start Freq 2.438000000 GHz
Stop Freq 2.442000000 GHz
CF Step 400.000 kHz
Auto Man
Freq Offset 0 Hz

Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
07:51:40 PM Mar 26, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 752 kHz
-0.05 dB
Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.479 608 GHz -1.37 dBm
2 N 1 f 2.479 964 GHz 4.68 dBm
3 Δ1 1 f (Δ) 752 kHz (Δ) -0.05 dB
Frequency
Auto Tune
Center Freq 2.480000000 GHz
Start Freq 2.478000000 GHz
Stop Freq 2.482000000 GHz
CF Step 400.000 kHz
Auto Man
Freq Offset 0 Hz

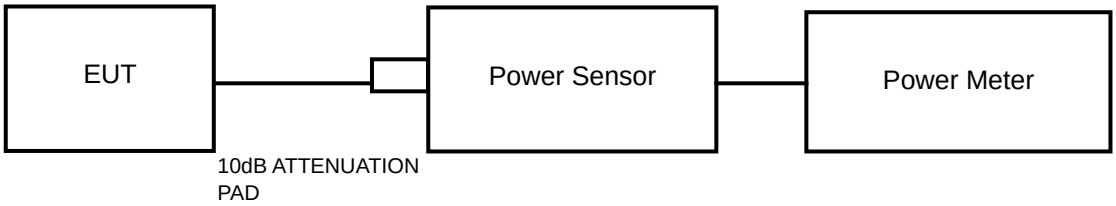
High

3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT(W)	PASS/FAIL
1	2412	18.37	68.71	1	PASS
6	2437	18.31	67.76	1	PASS
11	2462	18.47	70.31	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT(W)	PASS/FAIL
1	2412	19.79	95.28	1	PASS
6	2437	21.91	155.24	1	PASS
11	2462	20.23	105.44	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT(W)	PASS/FAIL
1	2412	19.38	86.70	1	PASS
6	2437	22.18	165.20	1	PASS
11	2462	19.78	95.06	1	PASS

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT(W)	PASS/FAIL
0	2402	11.24	13.30	1	PASS
19	2440	11.26	13.37	1	PASS
39	2480	10.40	10.96	1	PASS

3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	15.82	38.19
6	2437	15.72	37.33
11	2462	15.84	38.37

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	12.63	18.32
6	2437	14.57	28.64
11	2462	12.80	19.05

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	12.16	16.44
6	2437	14.92	31.05
11	2462	12.27	16.87

BT-LE (GFSK)

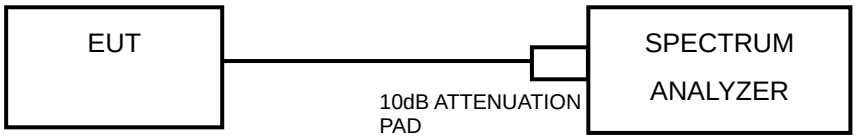
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
0	2402	5.24	3.34
19	2440	4.87	3.07
39	2480	4.69	2.94

3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW ≥ 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

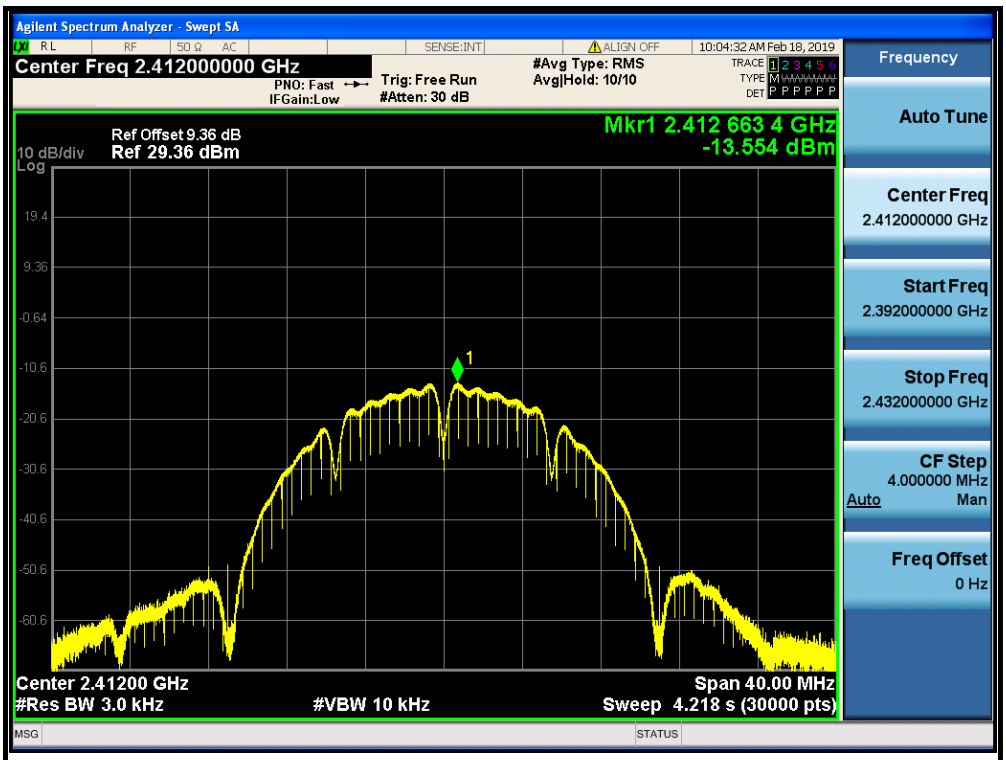
3.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

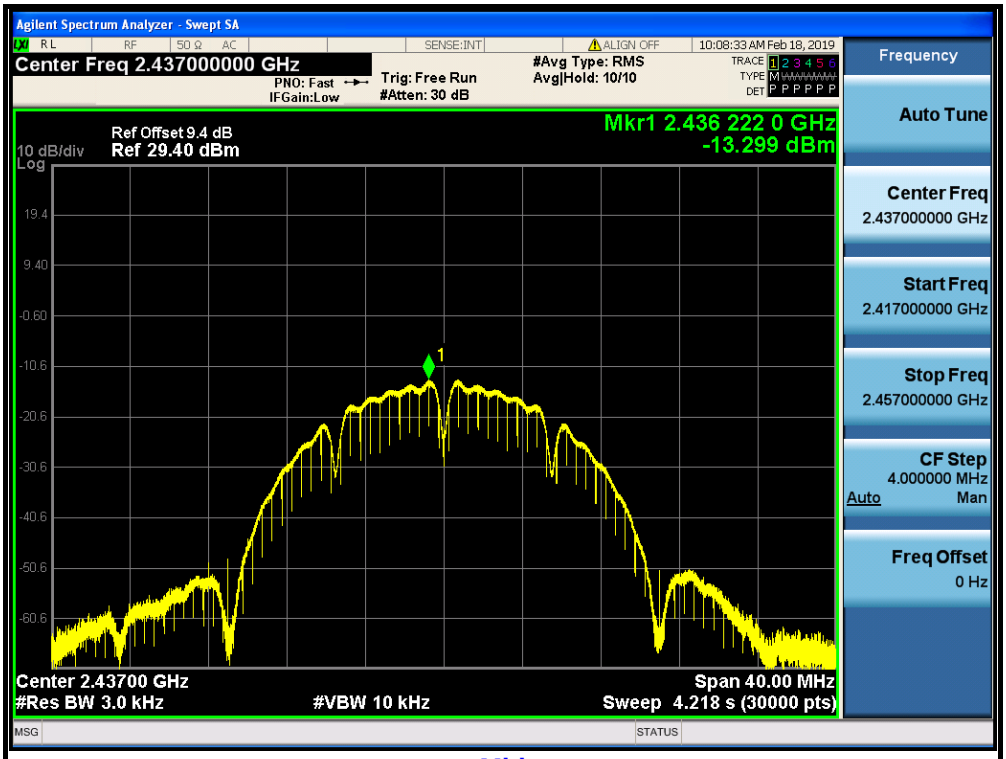
3.5.7 TEST RESULTS

802.11b

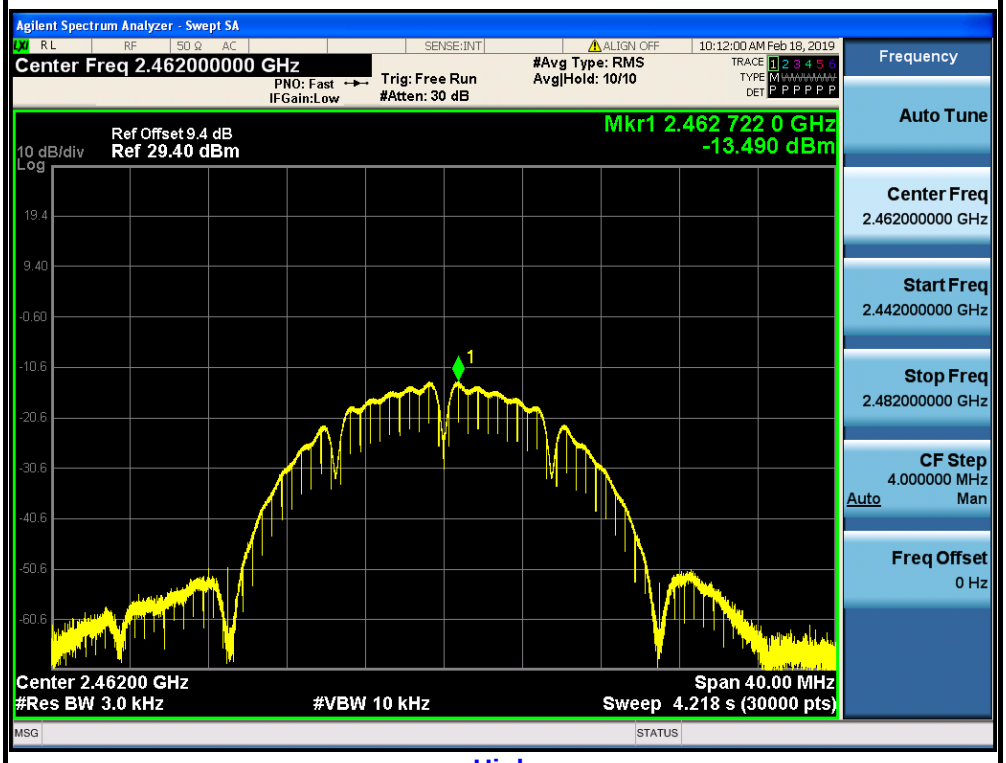
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.554	8	PASS
6	2437	-13.299	8	PASS
11	2462	-13.490	8	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:08:33 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.436 222 0 GHz
-13.299 dBm
Center 2.43700 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.437000000 GHz
Start Freq
2.417000000 GHz
Stop Freq
2.457000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

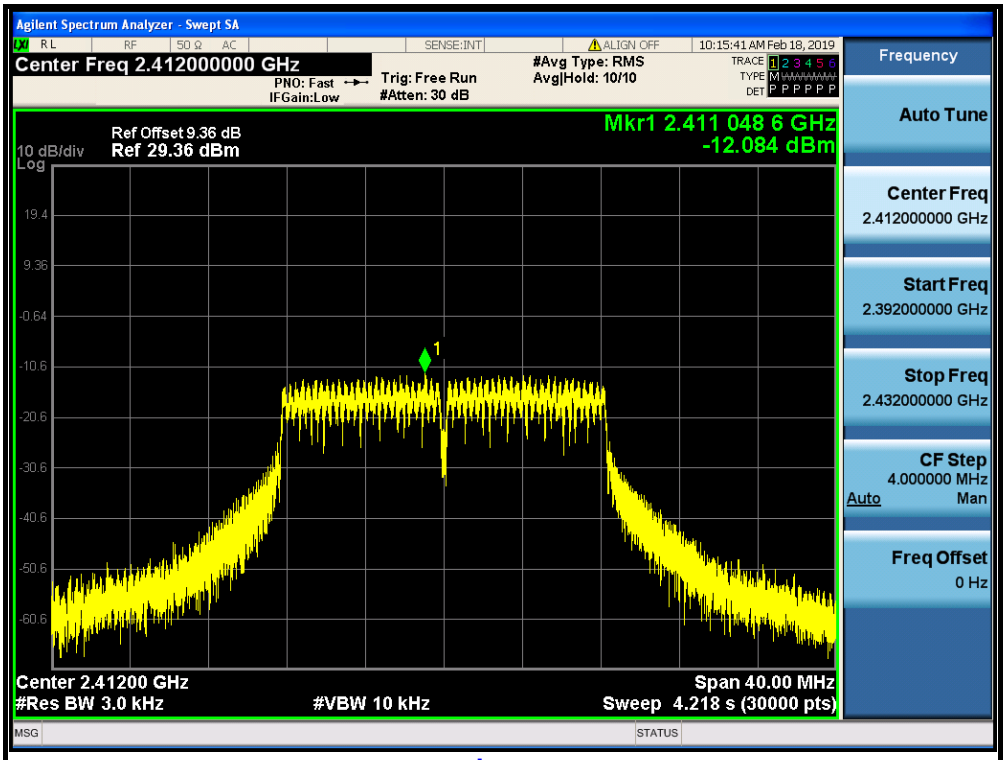
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:12:00 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.462 722 0 GHz
-13.490 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.442000000 GHz
Stop Freq
2.482000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

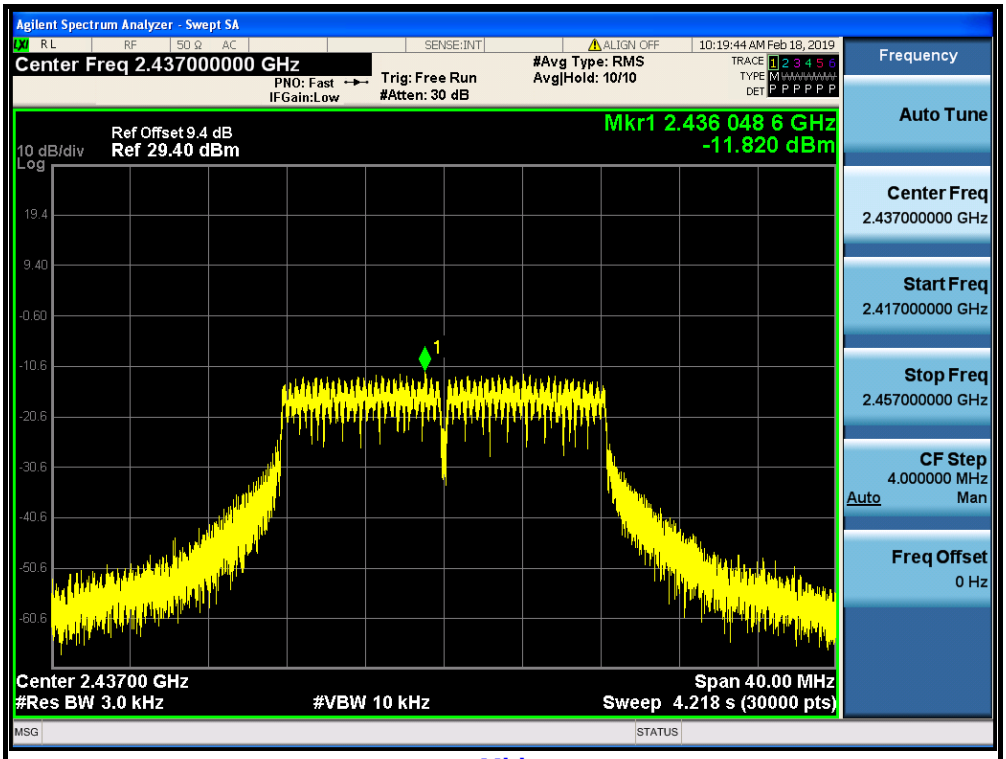
High

802.11g

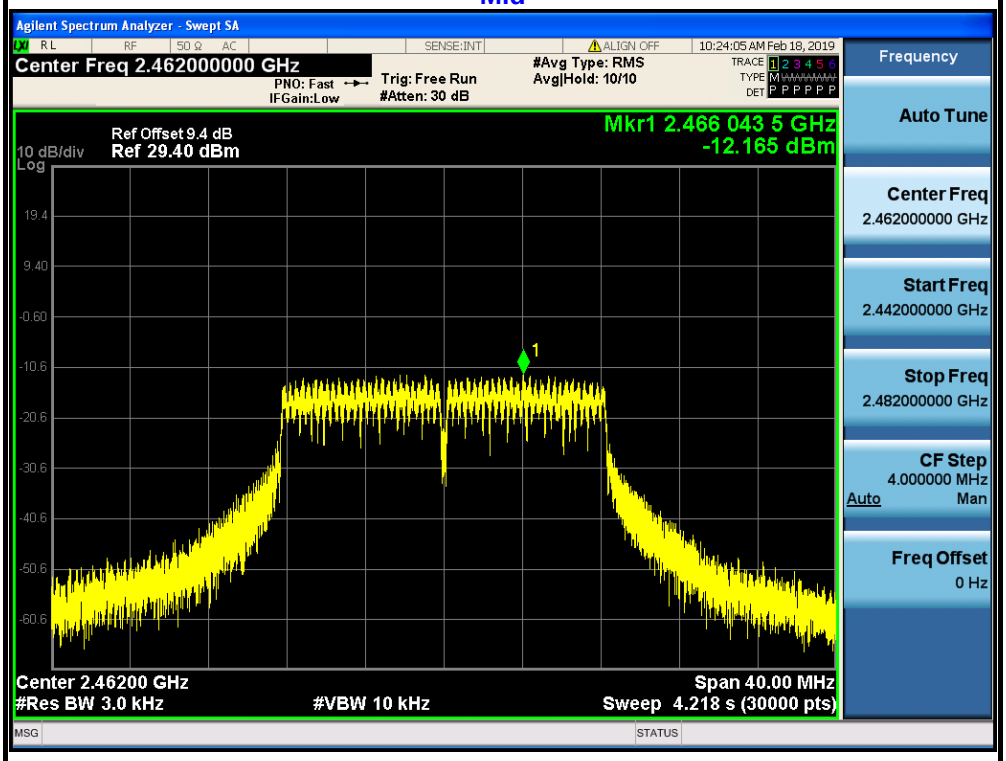
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.084	8	PASS
6	2437	-11.820	8	PASS
11	2462	-12.165	8	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:19:44 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Log
Mkr1 2.436 048 6 GHz
-11.820 dBm
Center 2.43700 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.437000000 GHz
Start Freq
2.417000000 GHz
Stop Freq
2.457000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

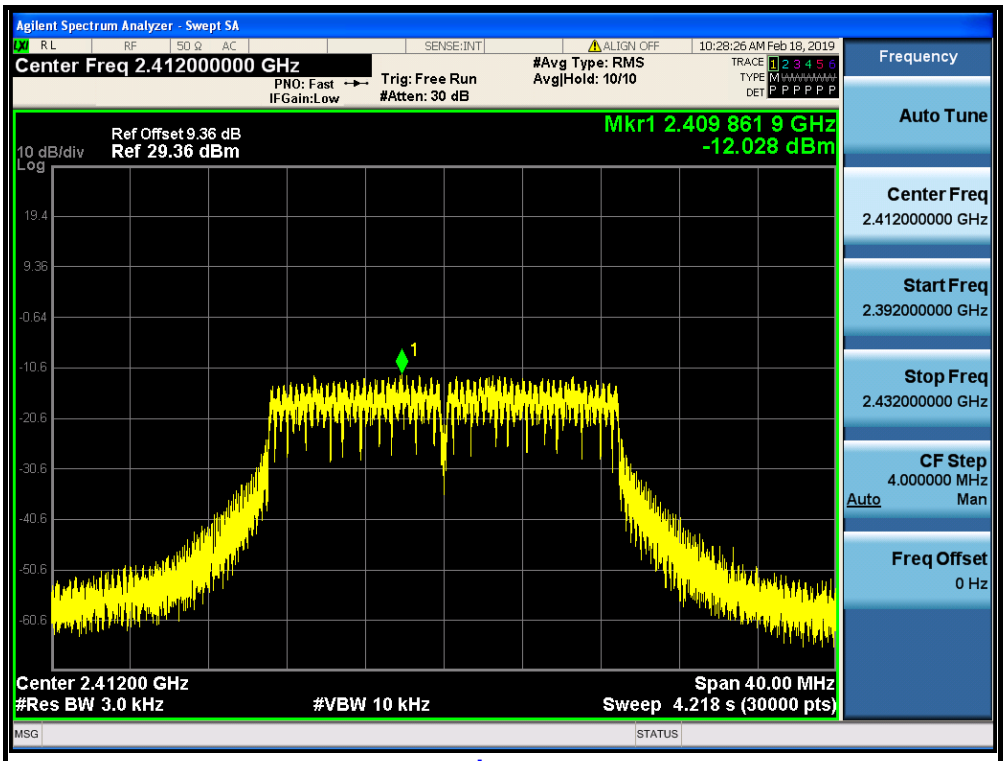
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:24:05 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Log
Mkr1 2.466 043 5 GHz
-12.165 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.442000000 GHz
Stop Freq
2.482000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

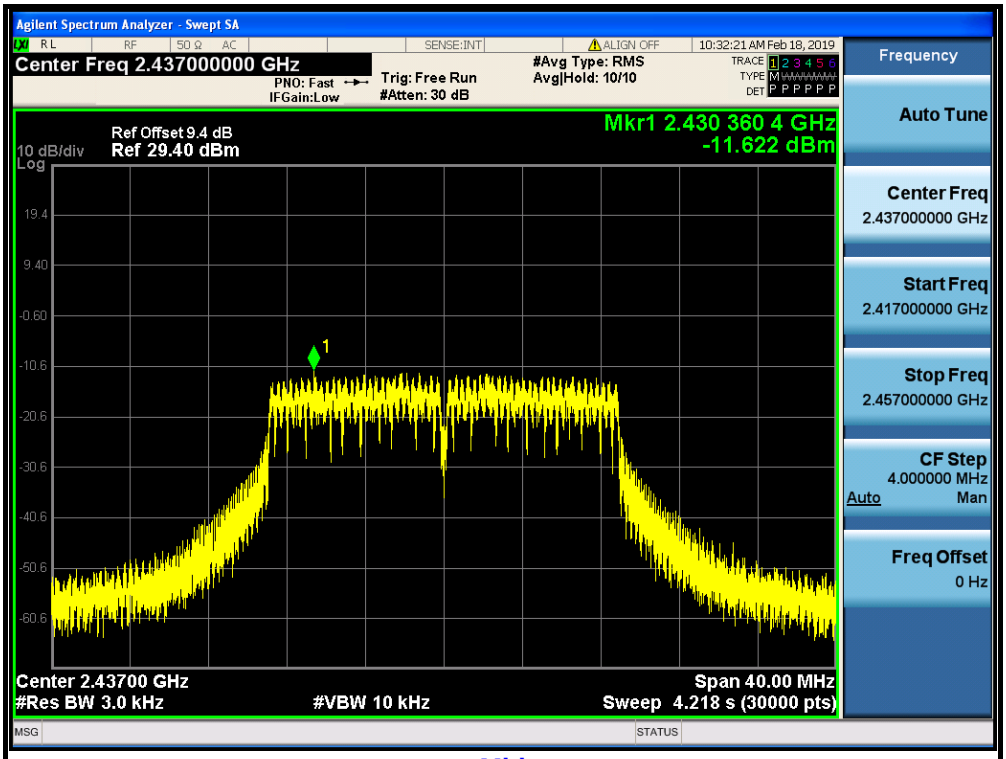
High

802.11n (20MHz)

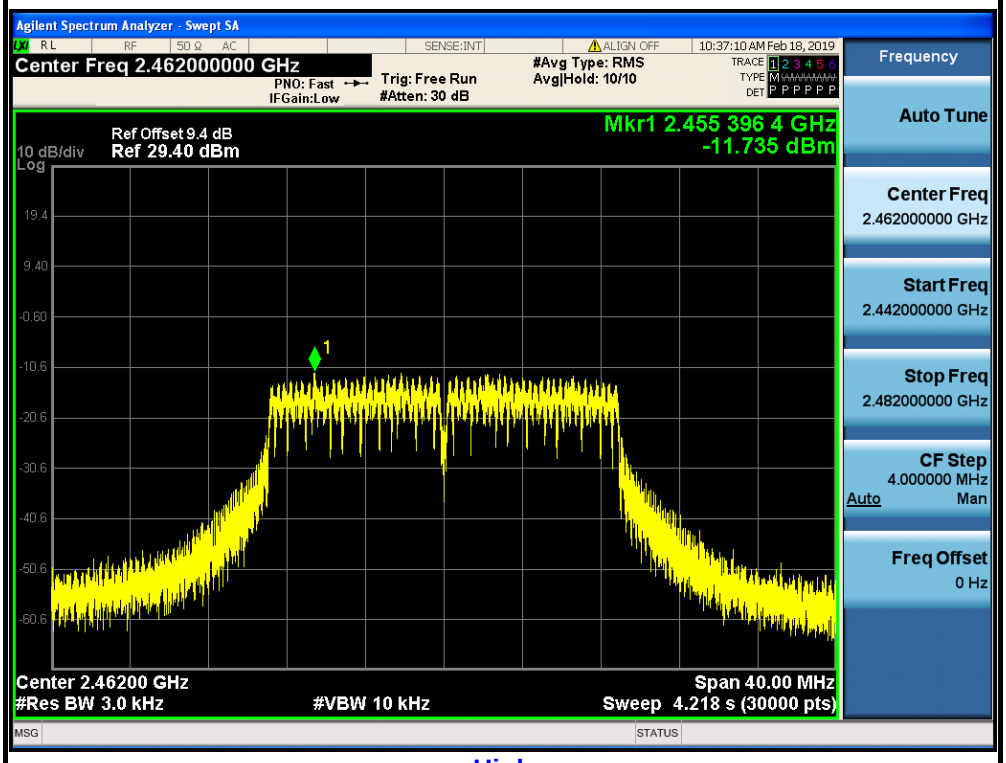
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.028	8	PASS
6	2437	-11.622	8	PASS
11	2462	-11.735	8	PASS



Low


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.437000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:32:21 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.430 360 4 GHz
-11.622 dBm
Center 2.43700 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.437000000 GHz
Start Freq
2.417000000 GHz
Stop Freq
2.457000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

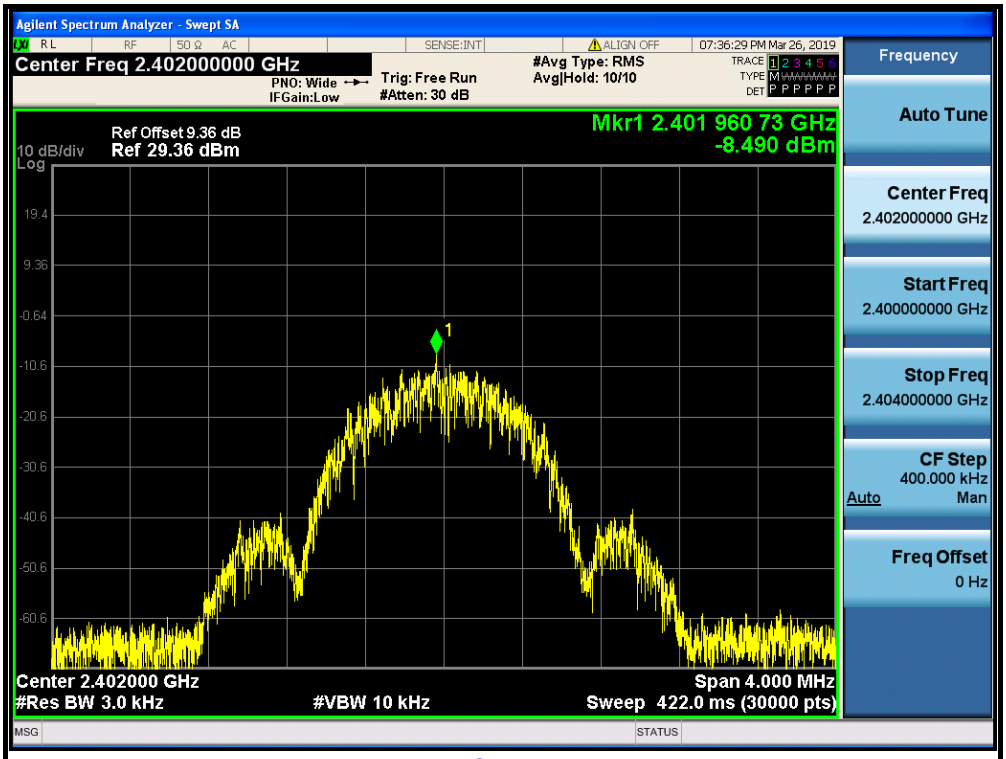
Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:37:10 AM Feb 18, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.455 396 4 GHz
-11.735 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 40.00 MHz
Sweep 4.218 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.442000000 GHz
Stop Freq
2.482000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz

High

BT-LE (GFSK)

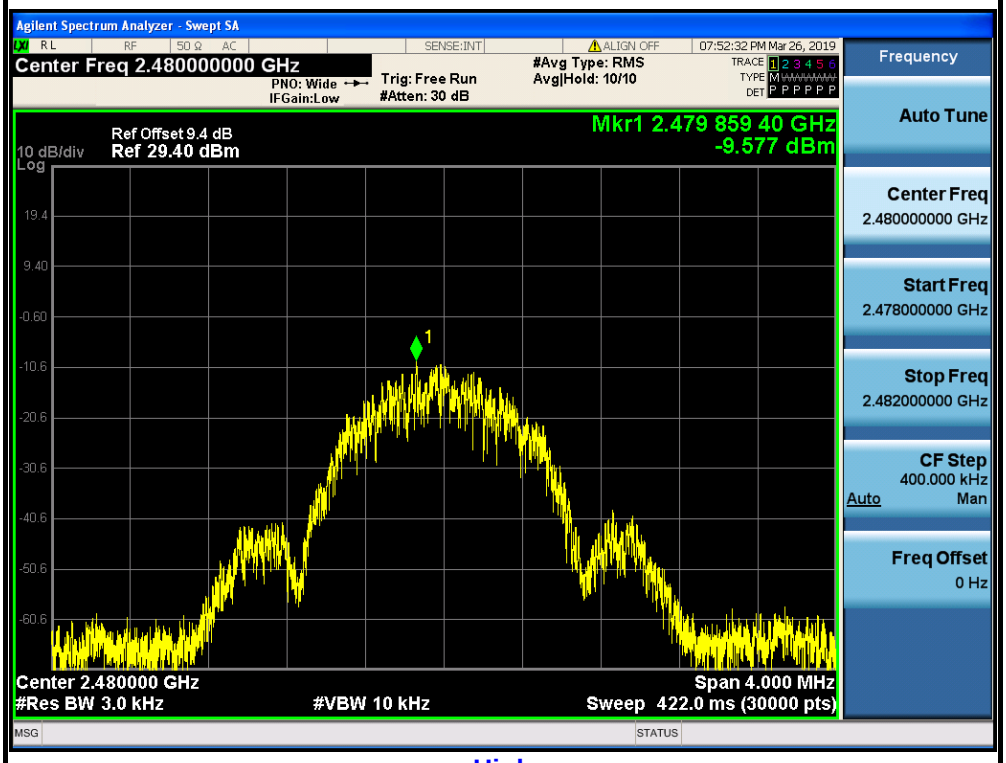
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-8.490	8	PASS
19	2440	-9.727	8	PASS
39	2480	-9.577	8	PASS



Low

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.440000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
07:44:22 PM Mar 26, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.439 881 13 GHz
-9.727 dBm
Center 2.440000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 4.000 MHz
Sweep 422.0 ms (30000 pts)
Frequency
Auto Tune
Center Freq
2.440000000 GHz
Start Freq
2.438000000 GHz
Stop Freq
2.442000000 GHz
CF Step
400.000 kHz
Auto
Man
Freq Offset
0 Hz

Mid


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
07:52:32 PM Mar 26, 2019
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.479 859 40 GHz
-9.577 dBm
Center 2.480000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 4.000 MHz
Sweep 422.0 ms (30000 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.482000000 GHz
CF Step
400.000 kHz
Auto
Man
Freq Offset
0 Hz

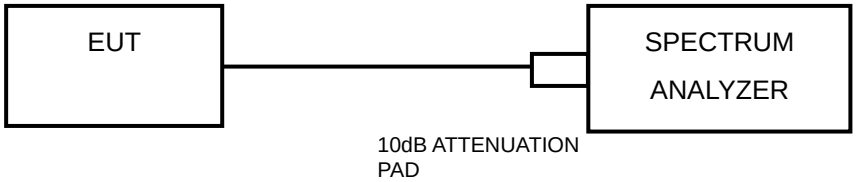
High

3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

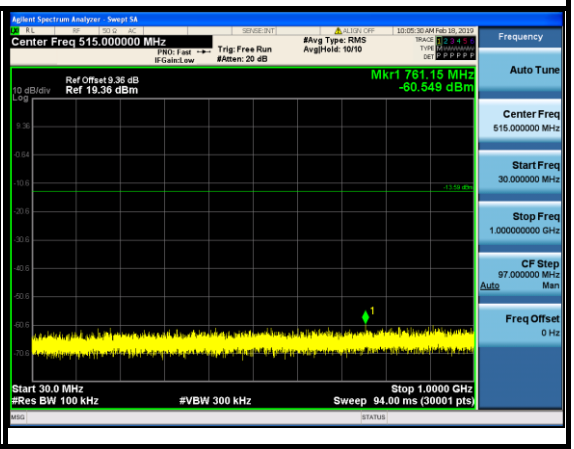
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

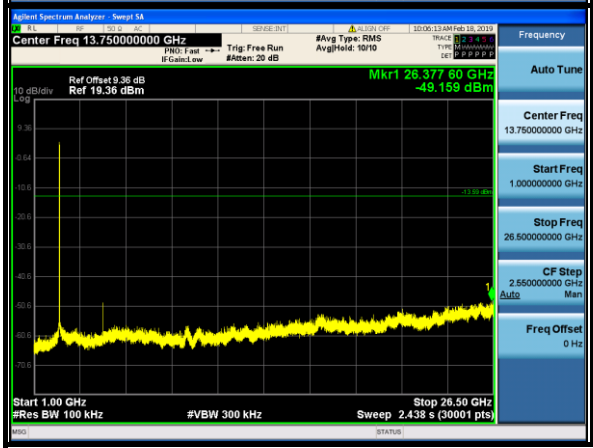
3.6.7 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

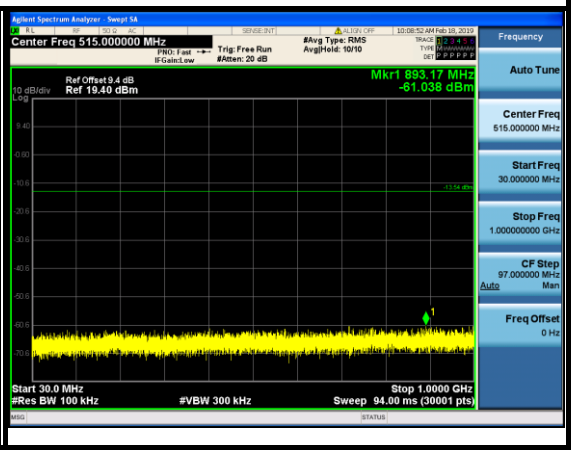
802.11b

CH 1



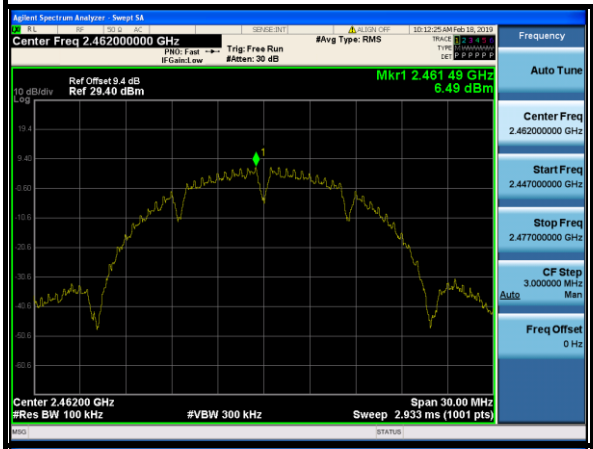


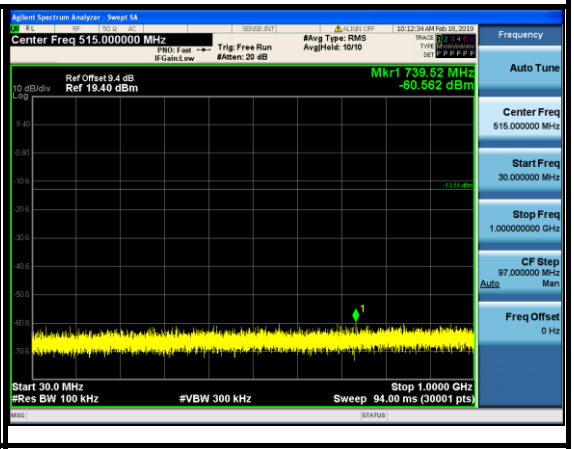
CH 6

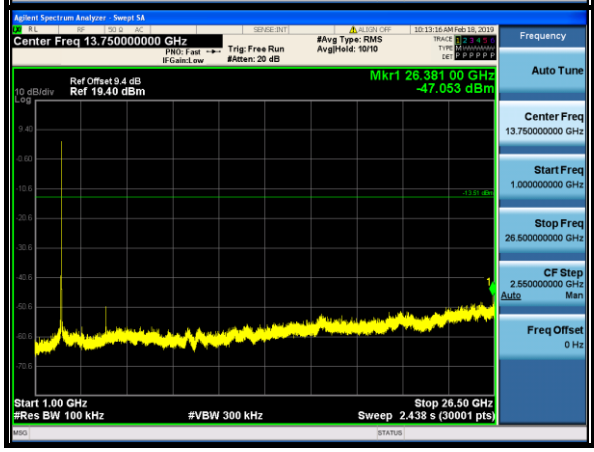


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.247 10 GHz
-48.793 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

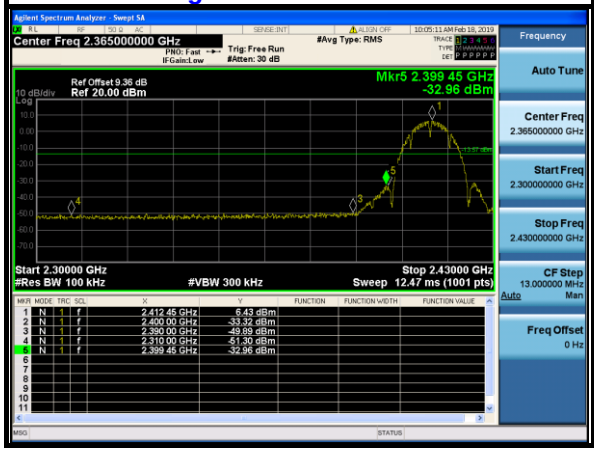
CH 11


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.461 49 GHz
6.49 dBm
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30.00 MHz
Sweep 2.933 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.447000000 GHz
Stop Freq
2.477000000 GHz
CF Step
3.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 739.52 MHz
-60.562 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 94.00 ms (30001 pts)
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 26.381 00 GHz
-47.053 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

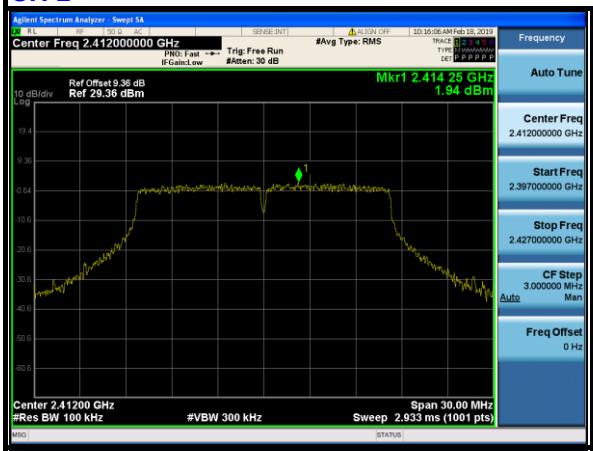
CH 1 Band Edge

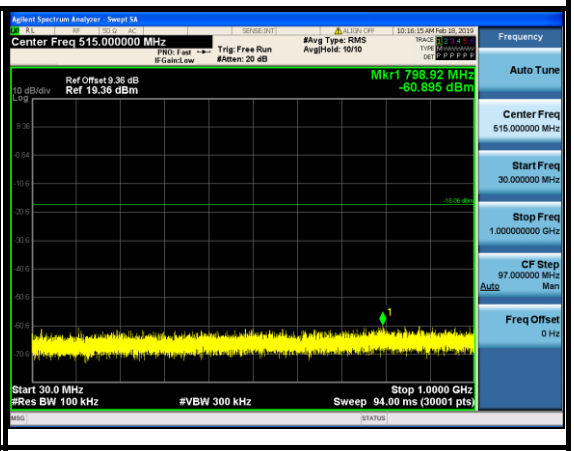


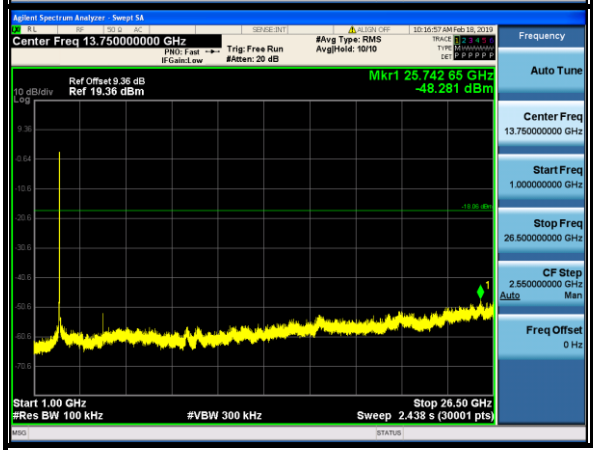
CH 11 Band Edge

802.11g

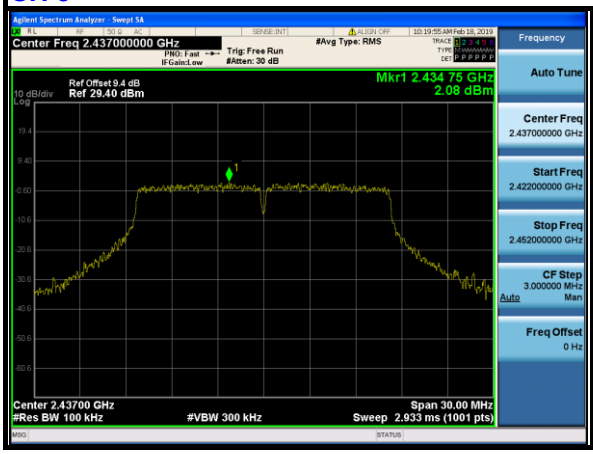
CH 1

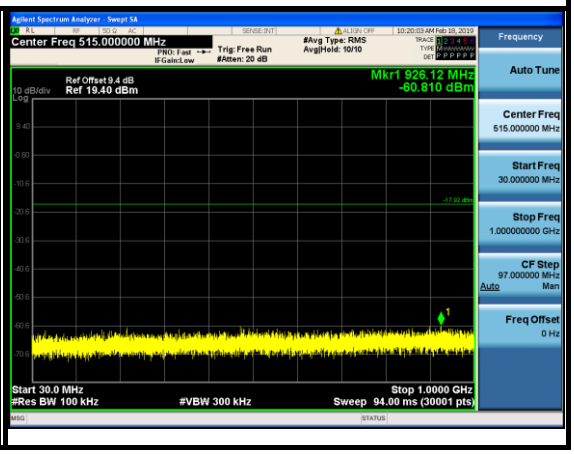






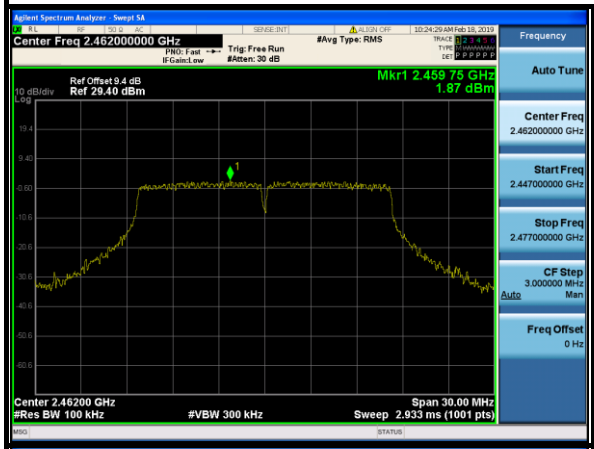
CH 6

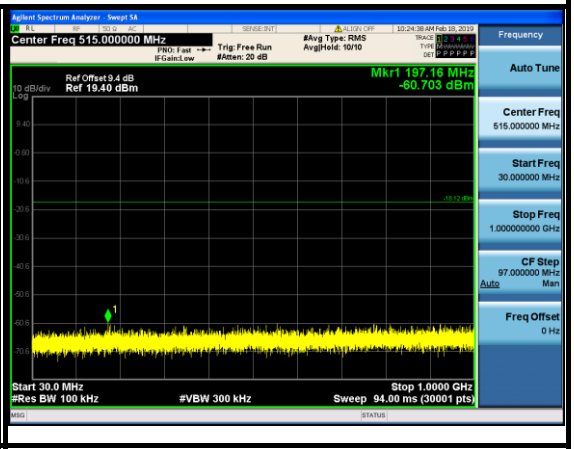


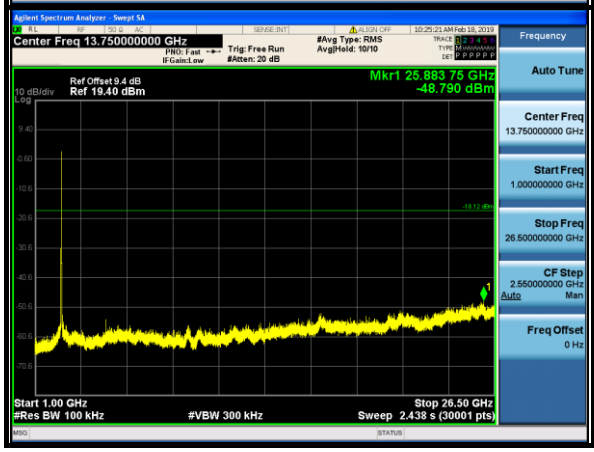


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:20:46 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.266 65 GHz
-47.830 dBm
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)

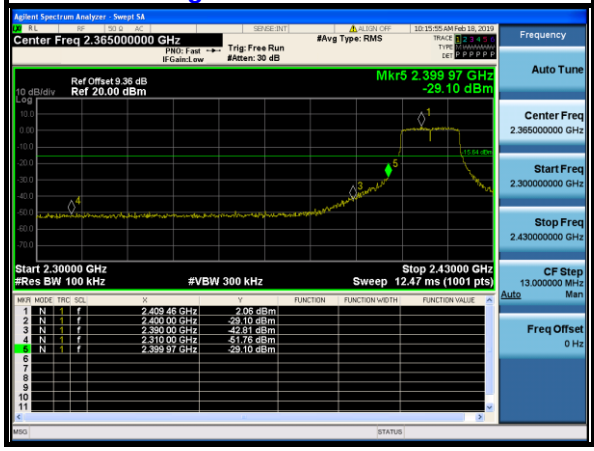
CH 11


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
10:24:29 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.459 75 GHz
1.87 dBm
Center Freq
2.462000000 GHz
Start Freq
2.447000000 GHz
Stop Freq
2.477000000 GHz
CF Step
3.000000 MHz
Auto
Man
Freq Offset
0 Hz
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30.00 MHz
Sweep 2.933 ms (1001 pts)


Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:24:38 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 197.16 MHz
-60.703 dBm
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 94.00 ms (30001 pts)

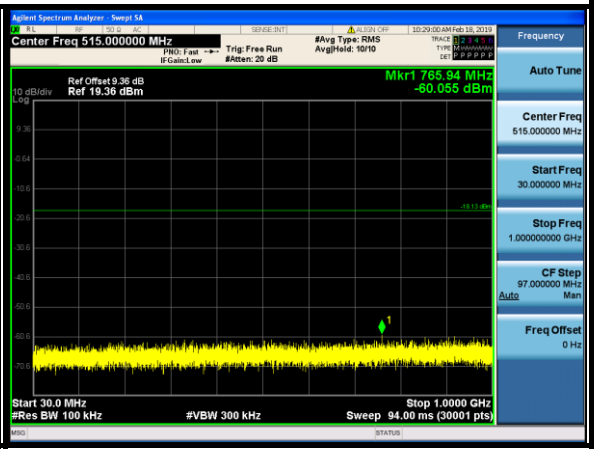

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:25:21 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.883 75 GHz
-48.790 dBm
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)

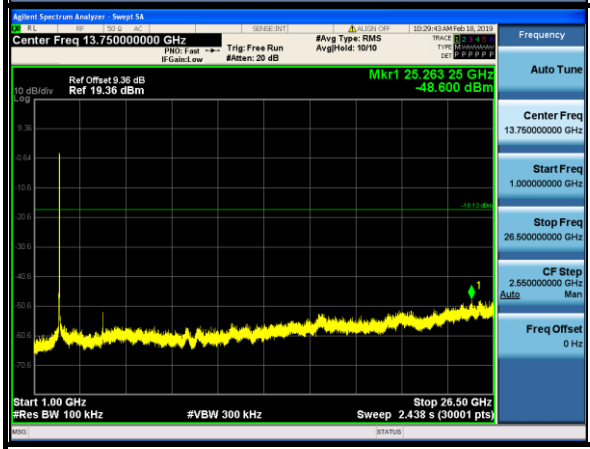
CH 1 Band Edge



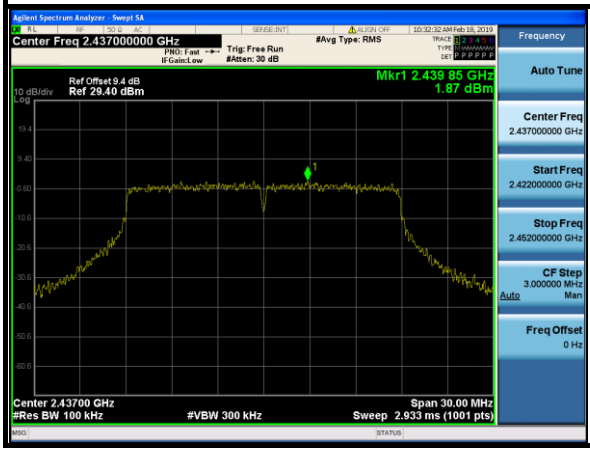
802.11n (20MHz)

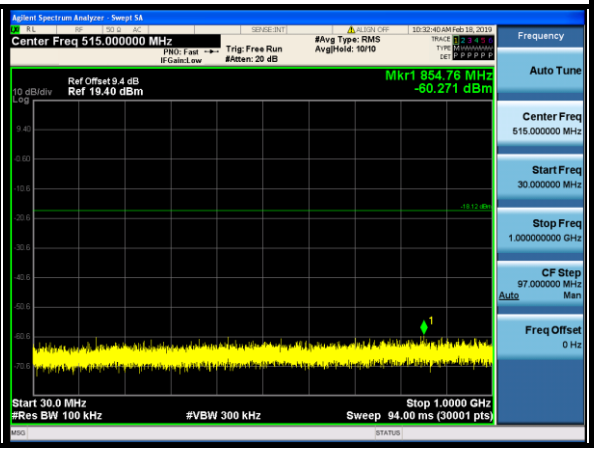
CH 1





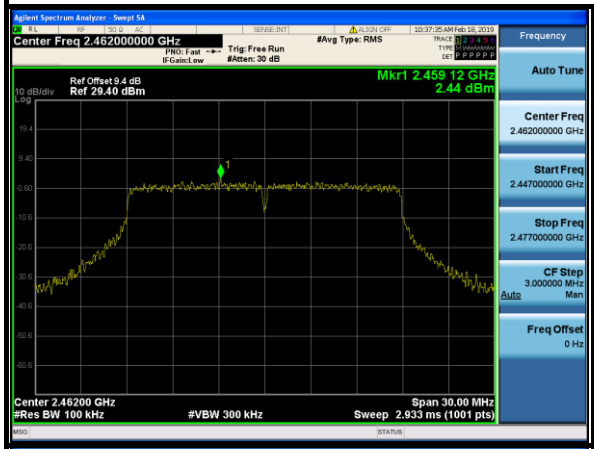
CH 6

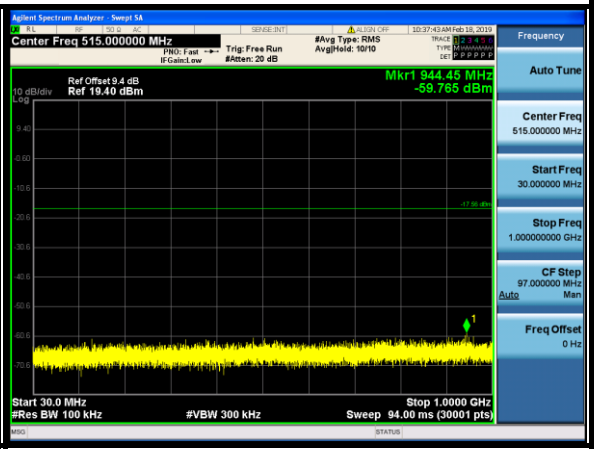


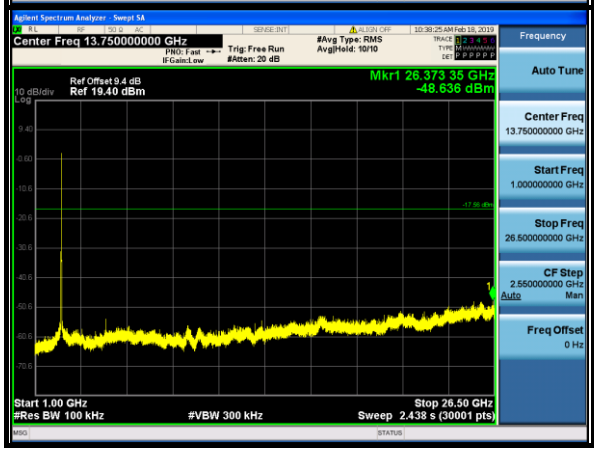


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:33:23 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.817 45 GHz
-48.824 dBm
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)

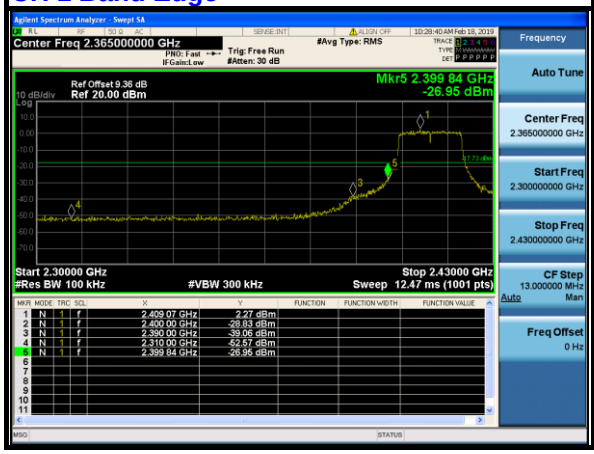
CH 11


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
10:37:35 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.459 12 GHz
2.44 dBm
Center Freq
2.462000000 GHz
Start Freq
2.447000000 GHz
Stop Freq
2.477000000 GHz
CF Step
3.000000 MHz
Auto
Man
Freq Offset
0 Hz
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30.00 MHz
Sweep 2.933 ms (1001 pts)


Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:37:43 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 944.45 MHz
-59.765 dBm
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 94.00 ms (30001 pts)


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:38:25 AM Feb 18, 2019
Frequency
Auto Tune
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 26.373 35 GHz
-48.636 dBm
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)

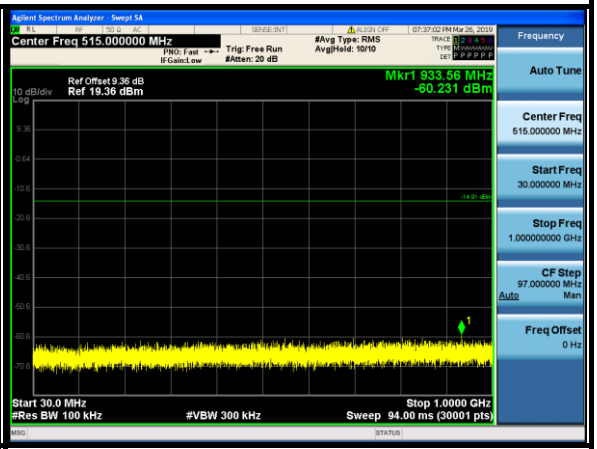
CH 1 Band Edge



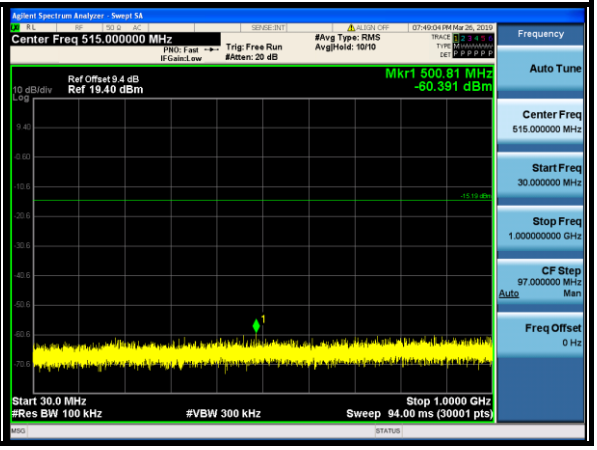
CH 11 Band Edge

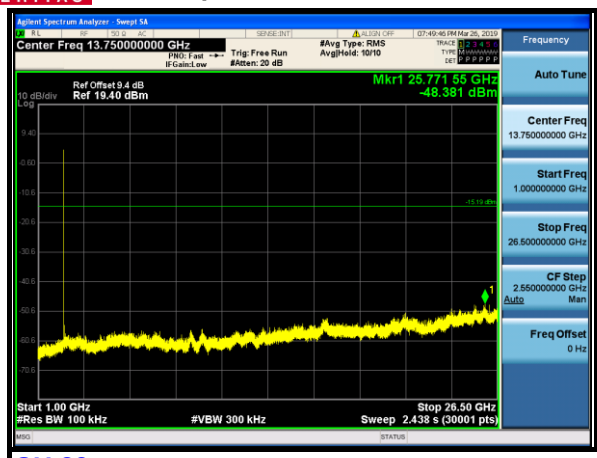
BT-LE (GFSK)

CH 0



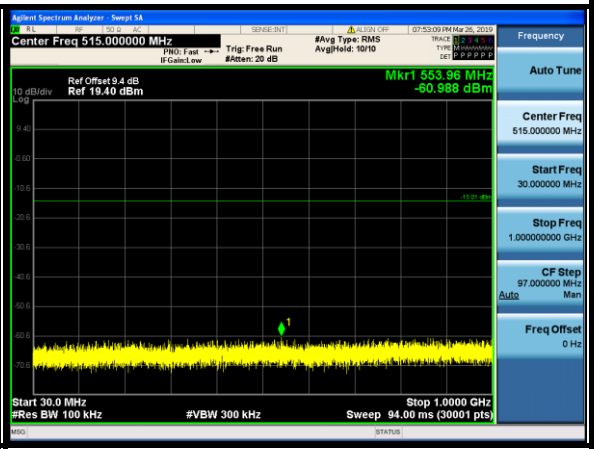
CH 19

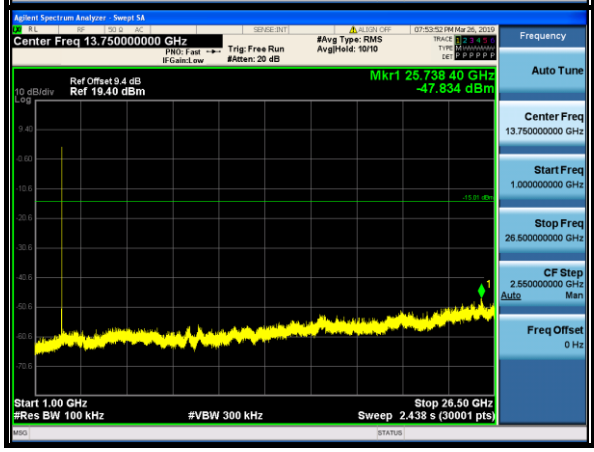



Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.771 55 GHz
-48.381 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

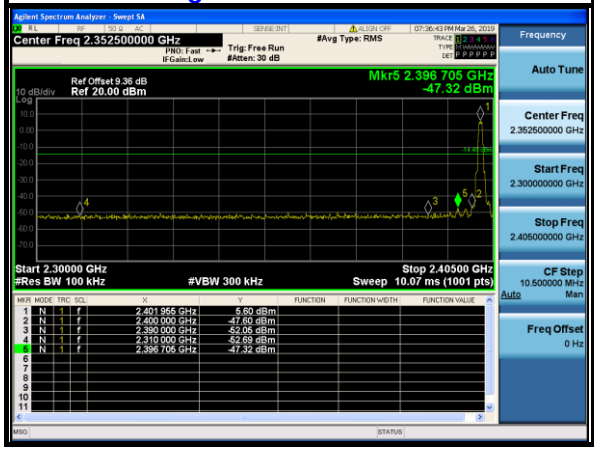
CH 39

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Ref Offset 9.4 dB
10 dB/div
Ref 29.40 dBm
Mkr1 2.479 985 GHz
4.99 dBm
Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3.000 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

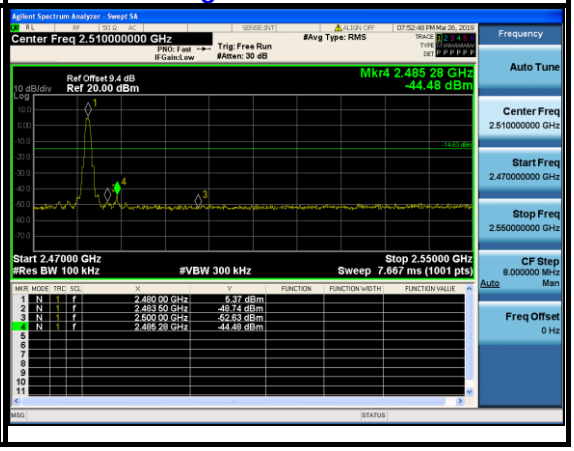

Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 553.96 MHz
-60.988 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 94.00 ms (30001 pts)
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Ref Offset 9.4 dB
10 dB/div
Ref 19.40 dBm
Mkr1 25.738 40 GHz
-47.834 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz

CH 0 Band Edge



CH 39 Band Edge



4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---