



TEST REPORT

KCTL KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR20-SRF0177-B
Page (1) of (153)

KCTL

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2020-05-22

2. Use of Report : Certification

3. Name of Product / Model : Mobile phone / SM-M515F/DSN

4. Manufacturer / Country of Origin : Samsung Electronics Co., Ltd. / Vietnam

5. FCC ID : A3LSMM515F

6. Date of Test : 2020-06-03 to 2020-07-16

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing (Address: Address of testing location)

8. Test method used : FCC Part 15 Subpart E, 15.407

9. Test Results : Refer to the test result in the test report

Affirmation	Tested by	Technical Manager
	Name : Kwonse Kim (Signature)	Name : Seungyong Kim (Signature)

2020-07-27

KCTL Inc.

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by KCTL Inc.

REPORT REVISION HISTORY

Date	Revision	Page No
2020-07-22	Originally issued	-
2020-07-24	Updated	15, 26, 36
2020-07-27	Updated	113

This report shall not be reproduced except in full, without the written approval of KCTL Inc. This document may be altered or revised by KCTL Inc. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KCTL Inc. will constitute fraud and shall nullify the document. This test report is a general report that does not use the KOLAS accreditation mark and is not related to KS Q ISO/IEC 17025 and KOLAS accreditation.

Note. The report No. KR20-SRF0177-A is superseded by the report No. KR20-SRF0177-B.

General remarks for test reports

Nothing significant to report.



CONTENTS

1.	General information	4
2.	Device information	4
2.1.	Accessory information	6
2.2.	Frequency/channel operations.....	6
2.3.	Duty Cycle Factor.....	7
3.	Antenna requirement	8
4.	Summary of tests	9
5.	Measurement uncertainty	10
6.	Measurement results explanation example	11
7.	Test results	12
7.1.	Maximum conducted output power	12
7.2.	Maximum Power Spectral Density	24
7.3.	26 dB Bandwidth & 99% Bandwidth.....	35
7.4.	6 dB Bandwidth.....	47
7.5.	Straddle channel.....	51
7.6.	Spurious Emission, Band Edge and Restricted bands.....	60
7.7.	AC Conducted emission	151
8.	Measurement equipment.....	153

1. General information

Client : Samsung Electronics Co., Ltd.
 Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
 Manufacturer : Samsung Electronics Co., Ltd.
 Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
 Factory : SAMSUNG ELECTRONICS VIETNAM CO.,LTD.
 Address : YenPhong 1 - I.P YenTrung Commune, YenPhong Dist., Bac Ninh Province, Vietnam
 Laboratory : KCTL Inc.
 Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
 Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132
 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056
 Industry Canada Registration No. : 8035A
 KOLAS No.: KT231

2. Device information

Equipment under test : Mobile phone
 Model : SM-M515F/DSN
 Modulation technique : Bluetooth(BDR/EDR)_GFSK, $\pi/4$ DQPSK, 8DPSK
 Bluetooth(BLE)_GFSK
 WIFI(802.11a/b/g/n/ac)_DSSS, OFDM
 NFC_ASK
 LTE_QPSK, 16QAM, 64QAM
 WCDMA_QPSK
 GSM_GMSK, 8-PSK
 Number of channels : Bluetooth(BDR/EDR)_79 ch / Bluetooth(BLE)_40 ch
 802.11b/g/n_HT20 : 13 ch
 UNII-1: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
 UNII-2A: 4 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
 UNII-2C: 12 ch (20 MHz), 6 ch (40 MHz), 3 ch (80 MHz)
 UNII-3: 5 ch (20 MHz), 2 ch (40 MHz), 1 ch (80 MHz)
 Power source : DC 3.86 V
 Antenna specification : LTE/WCDMA_FPCB Antenna
 WIFI/Bluetooth(BDR/EDR/BLE)_FPCB Antenna
 NFC_FPCB Antenna

Antenna gain : WIFI/Bluetooth(BDR/EDR/BLE) : -1.39 dBi
UNII-1 : -1.44 dBi,
UNII-2A : -0.93 dBi
UNII-2C : 0.41 dBi
UNII-3 : -0.74 dBi

Frequency range : Bluetooth(BDR/EDR/BLE)_2 402 MHz ~ 2 480 MHz
2 412 MHz ~ 2 472 MHz (802.11b/g/n_HT20)
UNII-1: 5 180 MHz ~ 5 240 MHz (802.11a/n/ac_HT20/VHT20)
UNII-1: 5 190 MHz ~ 5 230 MHz (802.11n/ac_HT40/VHT40)
UNII-1: 5 210 MHz (802.11ac_VHT80)
UNII-2A: 5 260 MHz ~ 5 320 MHz (802.11a/n/ac_HT20/VHT20)
UNII-2A: 5 270 MHz ~ 5 310 MHz (802.11n/ac_HT40/VHT40)
UNII-2A: 5 290 MHz (802.11ac_VHT80)
UNII-2C: 5 500 MHz ~ 5 720 MHz (802.11a/n/ac_HT20/VHT20)
UNII-2C: 5 510 MHz ~ 5 710 MHz (802.11n/ac_HT40/VHT40)
UNII-2C: 5 530 MHz ~ 5 690 MHz (802.11ac_VHT80)
UNII-3: 5 745 MHz ~ 5 825 MHz (802.11a/n/ac_HT20/VHT20)
UNII-3: 5 755 MHz ~ 5 795 MHz (802.11n/ac_HT40/VHT40)
UNII-3: 5 775 MHz (802.11ac_VHT80)
NFC_13.56 MHz
LTE Band 2_1 850.7 MHz ~ 1909.3 MHz
LTE Band 4_1 710.7 MHz ~ 1754.3 MHz
LTE Band 5_824.7 MHz ~ 848.3 MHz
LTE Band 12_699.7 MHz ~ 715.3 MHz
LTE Band 17_706.5 MHz ~ 713.5 MHz
LTE Band 26_824.7 MHz ~ 848.3 MHz, 814.7 MHz ~ 824.0 MHz
LTE Band 41_2 498.5 MHz ~ 2 687.5 MHz
LTE Band 66_1 710.7 MHz ~ 1779.3 MHz
GSM 850_824.2 MHz ~ 848.8 MHz
GSM 1900_1 850.2 MHz ~ 1 909.8 MHz
WCDMA 850_826.4 MHz ~ 846.6 MHz
WCDMA 1700_1 712.4 MHz ~ 1752.6 MHz
WCDMA 1900_1 852.4 MHz ~ 1907.6 MHz

Software version : M515F.001
Hardware version : REV1.0
Test device serial No. : Conducted(R38N503AA4V)
Radiated(R38N602TCWT)
Operation temperature : -30 °C ~ 50 °C

2.1. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power source	Note.
Travel Adapter	Samsung Electronics Co., Ltd.	EP-TA800	R37B3MA0608DK3, R37N3MAL9A8DK3	INPUT : 100-240V, 50-60Hz 0.7A Output : (PDO) 5V/3A, 15W or 9V(2.77A), 25W (PPS) 3.3-5.9V, 3A or 3.3-11V, 2.25 A(7.5-25W)	-
Earphone	Samsung Electronics Co., Ltd.	EP-DA705BBE (GH39-02026A)	-	-	White & Black colour

2.2. Frequency/channel operations

This device contains the following capabilities:

WIFI(802.11a/b/g/n/ac), Bluetooth(BDR/EDR/BLE), NFC

LTE Band 2, LTE Band 4, LTE Band 5, LTE Band 12, LTE Band 17, LTE Band 26, LTE Band 41, LTE Band 66, GSM 850, GSM 1900, WCDMA 850, WCDMA 1700, WCDMA 1900

UNII-1

Ch.	Frequency (MHz)
36	5 180
40	5 200
48	5 240

UNII-2A

Ch.	Frequency (MHz)
52	5 260
56	5 280
64	5 320

UNII-2C

Ch.	Frequency (MHz)
100	5 500
116	5 580
140	5 700
144	5 720

UNII-3

Ch.	Frequency (MHz)
149	5 745
157	5 785
165	5 825

Table 2.2-1. 802.11a/n/ac_HT20/VHT20 mode

UNII-1

Ch.	Frequency (MHz)
38	5 190
46	5 230

UNII-2A

Ch.	Frequency (MHz)
54	5 270
62	5 310

UNII-2C

Ch.	Frequency (MHz)
102	5 510
118	5 590
134	5 670
142	5 710

UNII-3

Ch.	Frequency (MHz)
151	5 755
159	5 795

Table 2.2-2. 802.11n/ac_HT40/VHT40 mode

UNII-1

Ch.	Frequency (MHz)
42	5 210

UNII-2A

Ch.	Frequency (MHz)
58	5 290

UNII-2C

Ch.	Frequency (MHz)
106	5 530
122	5 610
138	5 690

UNII-3

Ch.	Frequency (MHz)
155	5 775

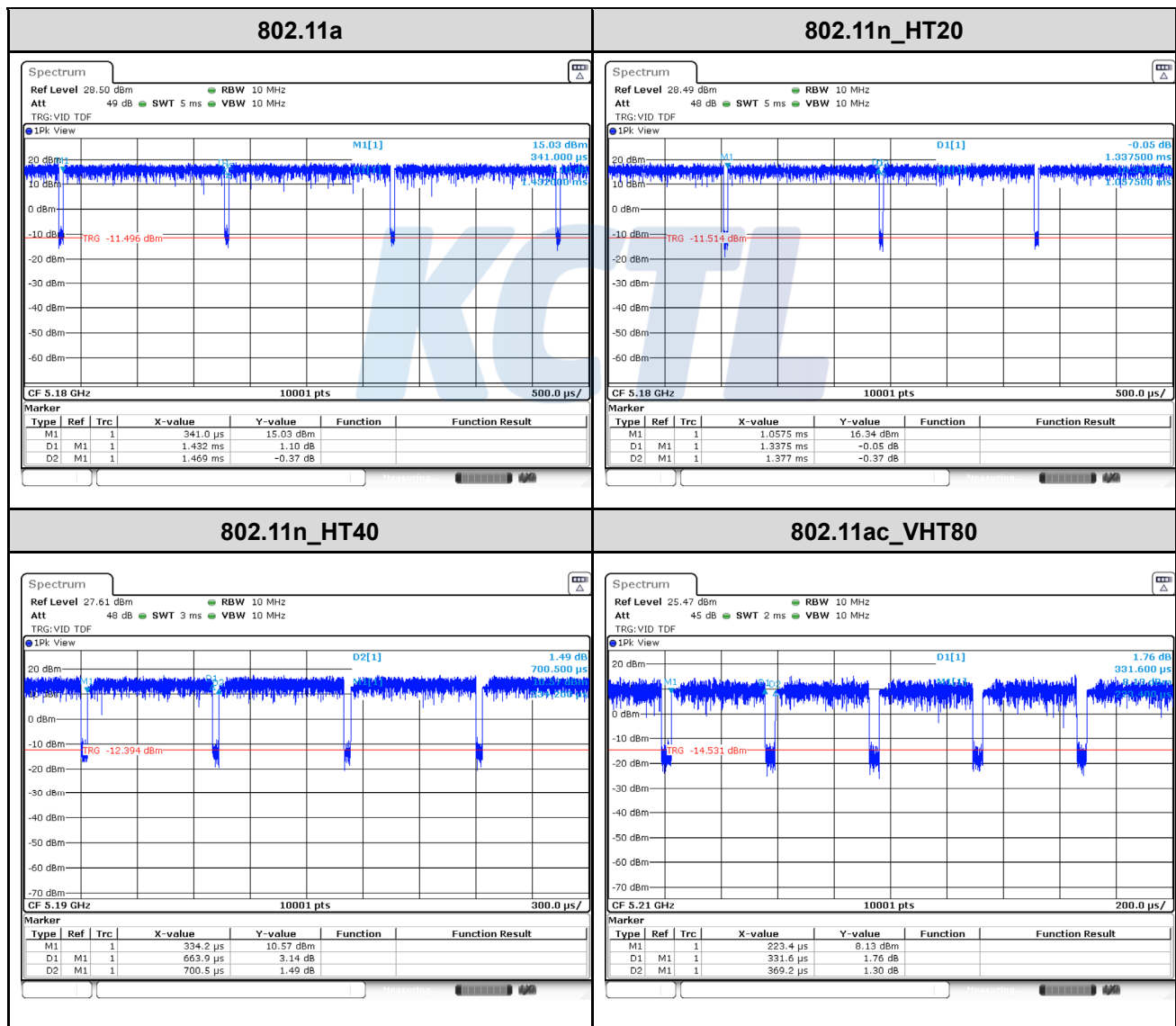
Table 2.2-3. 802.11ac_VHT80 mode

2.3. Duty Cycle Factor

Test mode	T _{on} time (ms)	Period (ms)	Duty cycle		Duty cycle factor (dB)
			(Linear)	(%)	
802.11a	1.432	1.469	0.9748	97.48	0.11
802.11n_HT20	1.337 5	1.377 0	0.971 3	97.13	0.13
802.11n_HT40	0.663 9	0.700 5	0.947 8	94.78	0.23
802.11ac_VHT80	0.331 6	0.369 2	0.898 2	89.82	0.47

Notes.

1. Duty cycle (Linear) = T_{on} time / Period
2. DCF(Duty cycle factor) = 10log(1/duty cycle)



3. Antenna requirement

Requirement of FCC part section 15.203, 15.407:

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.

- The transmitter has permanently attached FPCB Antenna (Internal antenna) on board.

KCTL

4. Summary of tests

FCC Part section(s)	Parameter	Test results
15.407(a)	Maximum conducted output power	Pass
15.407(a)	Maximum power spectral density	Pass
15.407(a)	26 dB Channel Bandwidth	Pass
15.407(e)	6 dB Channel Bandwidth	Pass
15.407(g)	Frequency stability	Pass
15.407(b), 15.205(a), 15.209(a)	Spurious emission	Pass
	Band-edge, restricted band	Pass
15.207(a)	Conducted Emissions	Pass

Notes:

- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- According to exploratory test no any obvious emission were detected from 9 kHz to 30 MHz. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
- The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that **X** orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in **X** orientation
- The test procedure(s) in this report were performed in accordance as following.
 - ANSI C63.10-2013
 - KDB 662911 D01 v02r01
 - KDB 789033 D02 v02r01
- Based on the baseline scan, the worst-case data rates were:
 - SISO Antenna: 802.11b mode : 1Mbps
 - 802.11g mode : 6Mbps
 - 802.11n HT20 mode : MCS0
 - 802.11n HT40 mode : MCS0
 - 802.11n VHT80 mode : MCS0
- Depending on spot-check result for n HT20 & HT40 mode is worst case than ac VHT20 & VHT40.

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty ($\pm$)	
Conducted RF power	1.76 dB	
Conducted spurious emissions	4.03 dB	
Radiated spurious emissions	9 kHz ~ 30 MHz:	2.28 dB
	30 MHz ~ 300 MHz	4.98 dB
	300 MHz ~ 1 000 MHz	5.14 dB
	1 GHz ~ 6 GHz	6.70 dB
	Above 6 GHz	6.60 dB
Conducted emissions	9 kHz ~ 150 kHz	3.66 dB
	150 kHz ~ 30 MHz	3.26 dB

KCTL

6. Measurement results explanation example

Frequency (MHz)	Factor(dB)	Frequency (MHz)	Factor(dB)
30	10.02	9 000	12.51
50	10.04	10 000	12.89
100	10.08	11 000	12.66
200	10.05	12 000	11.53
300	10.11	13 000	11.83
400	10.15	14 000	11.60
500	10.19	15 000	11.53
600	10.22	16 000	11.50
700	10.25	17 000	12.00
800	10.29	18 000	12.09
900	10.32	19 000	12.48
1 000	10.33	20 000	12.66
2 000	10.60	21 000	12.31
3 000	10.73	22 000	12.59
4 000	10.86	23 000	13.00
5 000	11.24	24 000	12.31
6 000	11.33	25 000	12.42
7 000	11.25	26 000	13.10
8 000	11.38	26 500	12.95

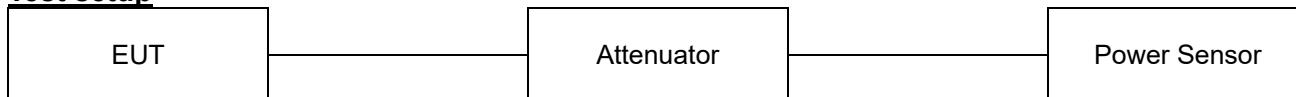
Notes:

Offset(dB) = RF cable loss(dB) + Attenuator(dB)

7. Test results

7.1. Maximum conducted output power

Test setup



Limit

According to §15.407(a),

Band	EUT category		Conducted output power limit
UNII-1		Outdoor access point	1 W (30 dBm)
		Indoor access point	
		Fixed point-to-point access point	
	√	Client device	250 mW (23.98 dBm)
UNII-2A	√		250 mW or 11 dBm + 10logB ¹⁾
UNII-2C	√		250 mW or 11 dBm + 10logB ¹⁾
UNII-3	√		1 W (30 dBm)

Note:

1) Conducted output power limit B is the 26 dB emission bandwidth.

Test procedure

ANSI C63.10-2013-Section 12.3.3.2 and 14.2
 KDB 789033 D02 v02r01 - Section E.2.d) or e)
 KDB 662911 D01 v02r01 – Section E).1)

Test settings

Used test method is Section E.2.d)

◆ KDB 789033 D02 v02r01

Section E.2.d)

Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction):

- (i) Measure the duty cycle, x , of the transmitter output signal as described in II.B..
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz
- (iv) Set RBW $\geq$ 3 MHz
- (v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- (vi) Sweep time = auto.
- (vii) Detector = power averaging (rms), if available. Otherwise use sample detector mode.
- (viii) Do not use sweep triggering. Allow the sweep to “free run.”
- (ix) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- (x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (xi) Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \log(1/0.25) = 6 \text{ dB}$ if the duty cycle is 25%.

Section E.2.e)

Method SA-2 Alternative (power averaging(rms) detection with slow sweep with each spectrum bin averaging across on and off times of the EUT transmissions, followed by duty cycle correction):

- (i) Measure the duty cycle, x , of the transmitter output signal as described in II.B..
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz
- (iv) Set RBW $\geq$ 3 MHz
- (v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- (vi) Manually set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
- (vii) Set detector = power averaging (rms)
- (viii) Perform a single sweep.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement

function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

- (x) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \log (1/0.25) = 6 \text{ dB}$ if the duty cycle is 25%.

Section E.3.a)**Method PM (Measurement using an RF average power meter):**

- (xi) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
- The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
 - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five
- (xii) If the transmitter does not transmit continuously, measure the duty cycle, x , of the transmitter output signal as described in II
- (xiii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (xiv) Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25%).

Section E.3.b)**Method PM-G (Measurement using a gated RF average power meter):**

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Test results

Test mode	Band	Freq (MHz)	Measured power (dBm)	DCF (dB)	Conducted output power (dBm)	Conducted Power Limit (dBm)
					Average	
802.11a	UNII-1	5 180	13.86	0.11	13.97	23.98
		5 200	14.59	0.11	14.70	
		5 240	14.06	0.11	14.17	
	UNII-2A	5 260	13.48	0.11	13.59	23.98
		5 280	13.68	0.11	13.79	
		5 320	14.39	0.11	14.50	
	UNII-2C	5 500	14.77	0.11	14.88	23.98
		5 580	14.95	0.11	15.06	
		5 700	14.85	0.11	14.96	
	UNII-3	5 745	14.11	0.11	14.22	30.00
		5 785	14.61	0.11	14.72	
		5 825	14.60	0.11	14.71	
802.11n HT20	UNII-1	5 180	13.58	0.13	13.71	23.98
		5 200	14.36	0.13	14.49	
		5 240	13.90	0.13	14.03	
	UNII-2A	5 260	13.32	0.13	13.45	23.98
		5 280	13.48	0.13	13.61	
		5 320	14.27	0.13	14.40	
	UNII-2C	5 500	14.70	0.13	14.83	23.98
		5 580	14.80	0.13	14.93	
		5 700	14.66	0.13	14.79	
	UNII-3	5 745	13.64	0.13	13.77	30.00
		5 785	14.19	0.13	14.32	
		5 825	14.16	0.13	14.29	
802.11n HT40	UNII-1	5 190	13.44	0.23	13.67	23.98
		5 230	13.67	0.23	13.90	
	UNII-2A	5 270	12.90	0.23	13.13	23.98
		5 310	13.65	0.23	13.88	
	UNII-2C	5 510	14.45	0.23	14.68	23.98
		5 590	14.38	0.23	14.61	
		5 670	14.30	0.23	14.53	
	UNII-3	5 755	13.63	0.23	13.86	30.00
		5 795	13.88	0.23	14.11	

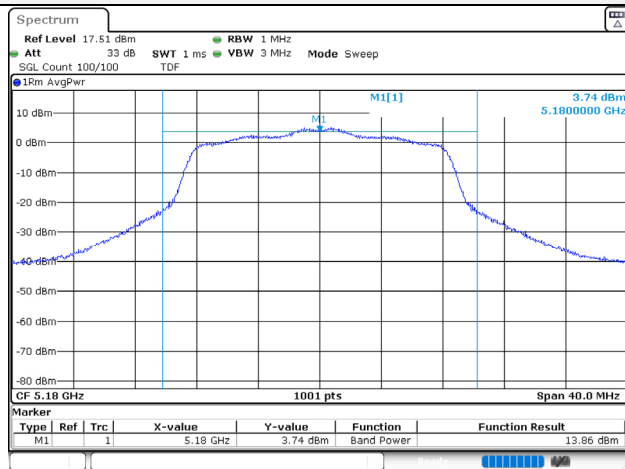
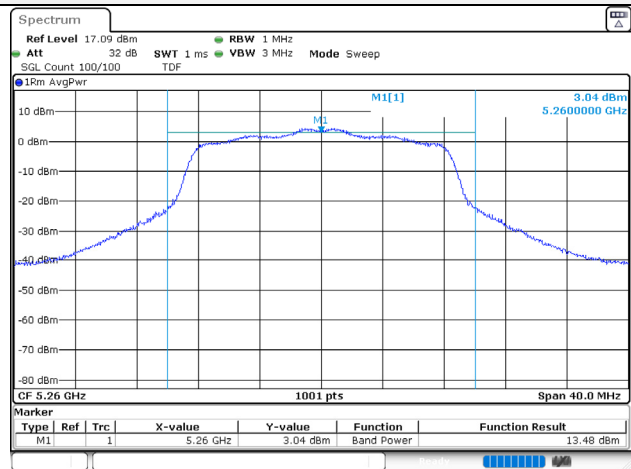
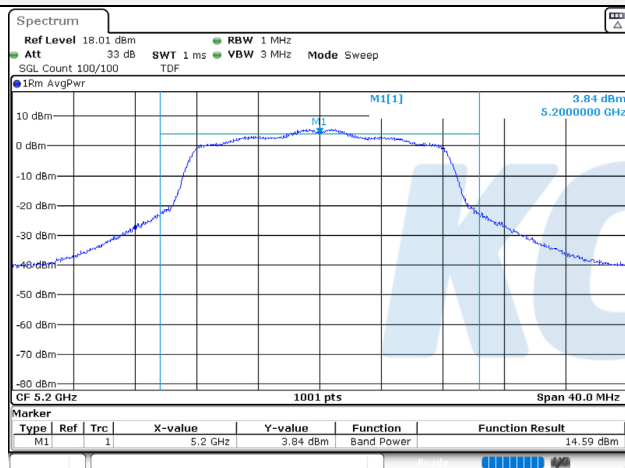
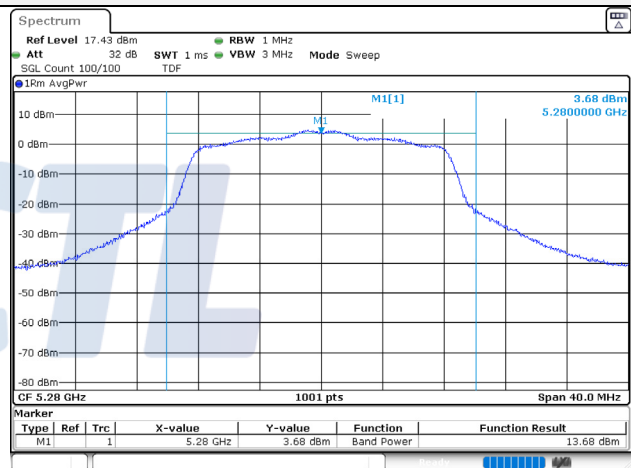
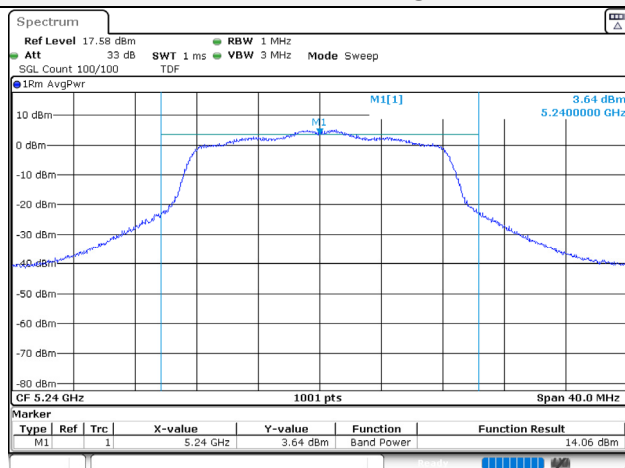
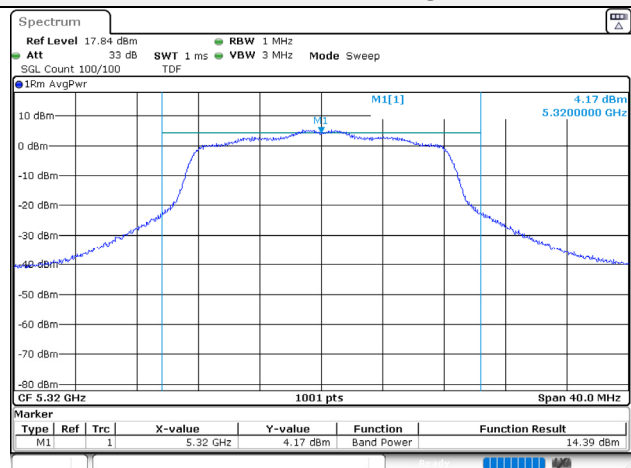
Test mode	Band	Freq (MHz)	Measured power (dBm)	DCF (dB)	Conducted output power (dBm)	Conducted Power Limit (dBm)
					Average	
802.11ac VHT80	UNII-1	5 210	11.54	0.47	12.01	23.98
	UNII-2A	5 290	10.98	0.47	11.45	23.98
	UNII-2C	5 530	12.65	0.47	13.12	23.98
		5 610	12.36	0.47	12.83	
	UNII-3	5 775	11.24	0.47	11.71	30.00

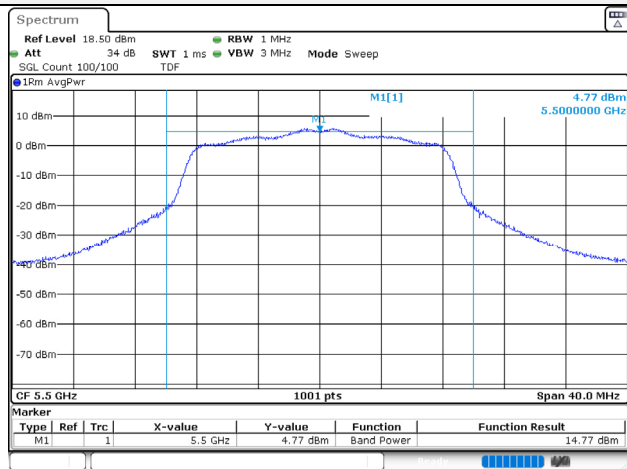
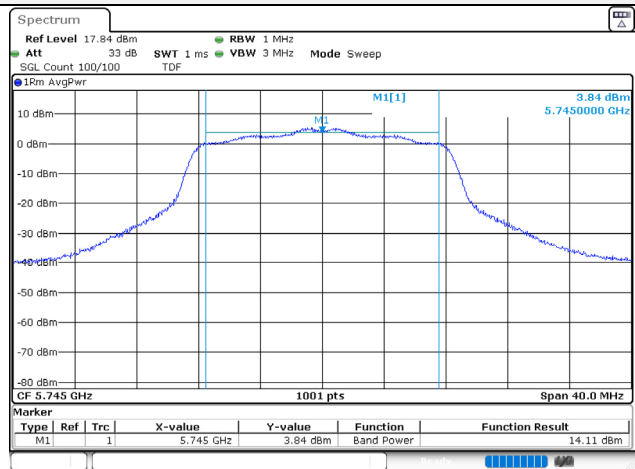
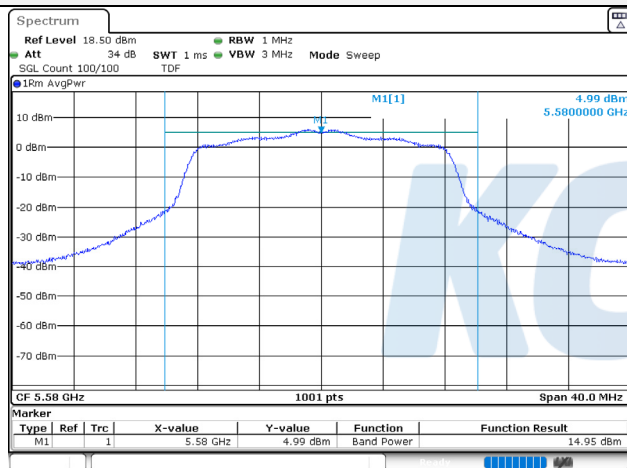
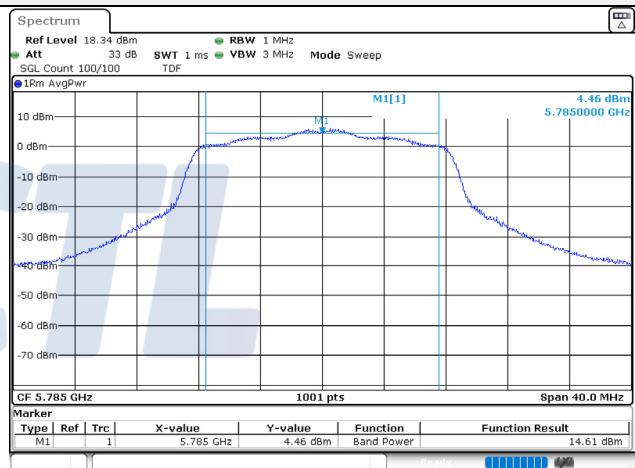
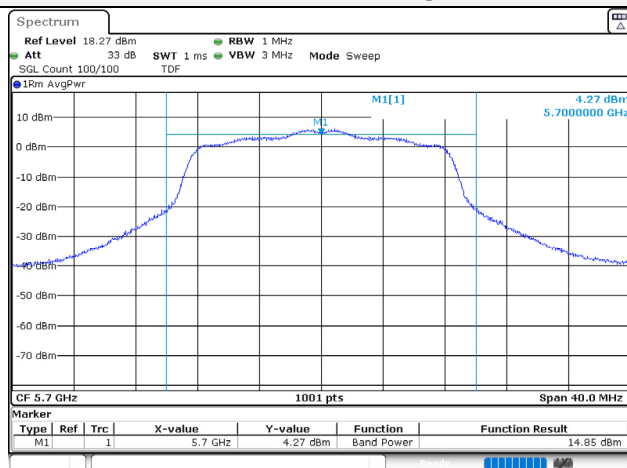
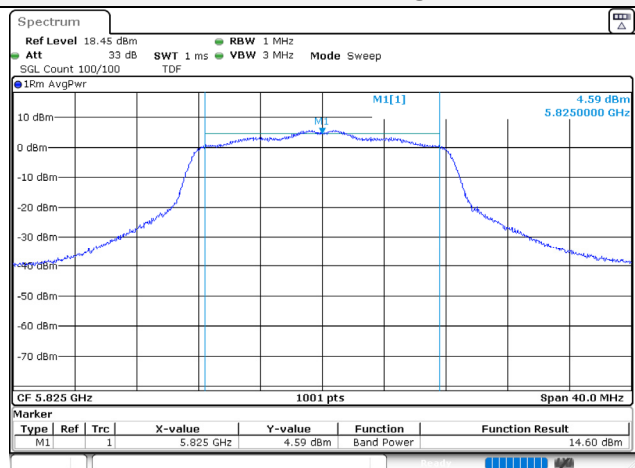
Note:

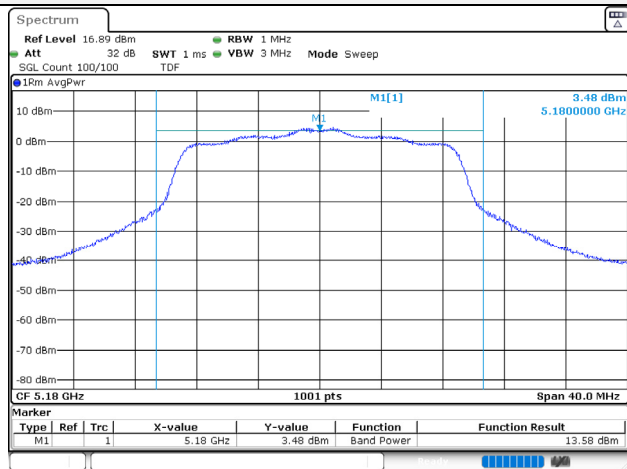
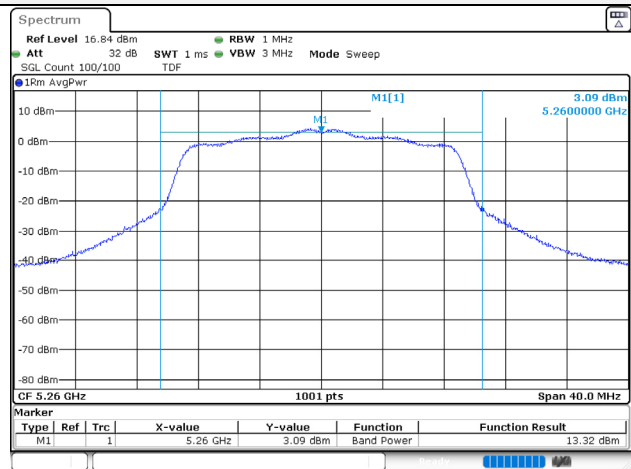
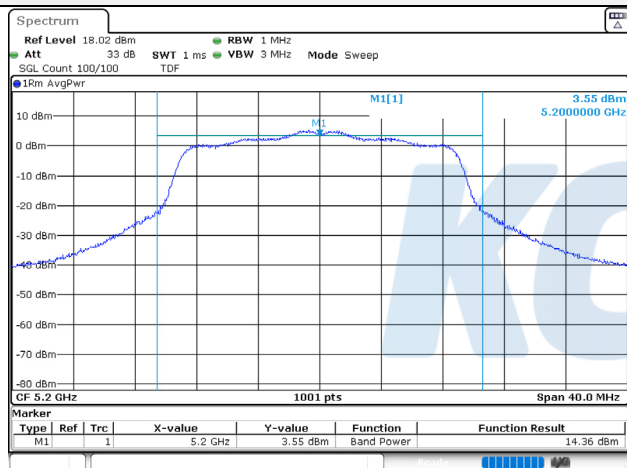
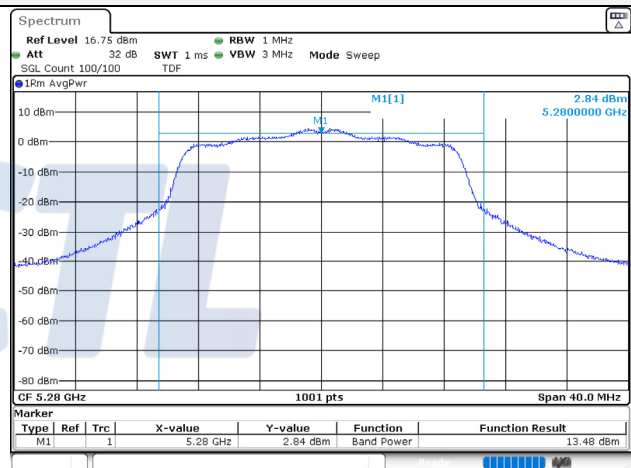
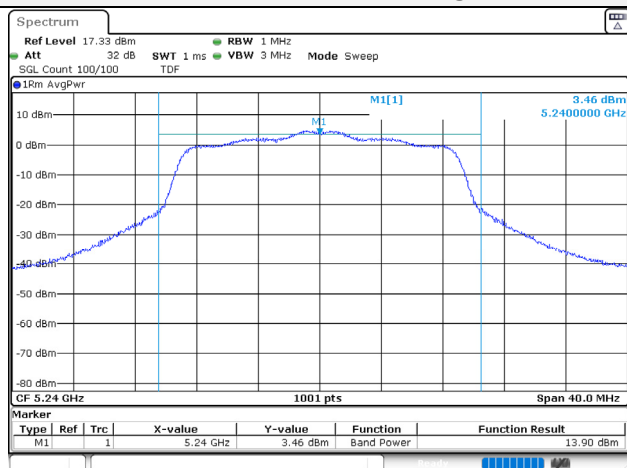
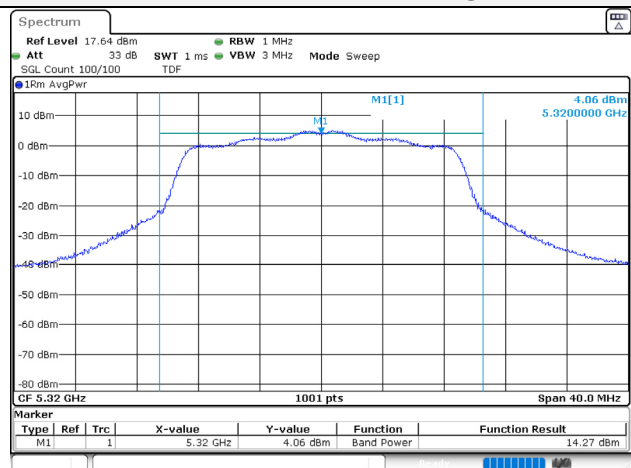
1. Conducted Output power Calculation:

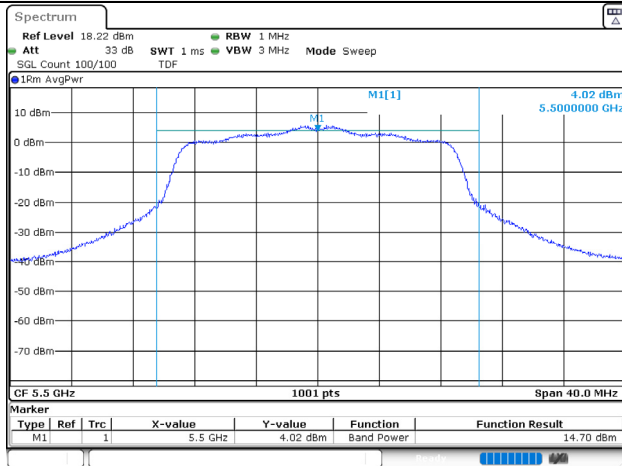
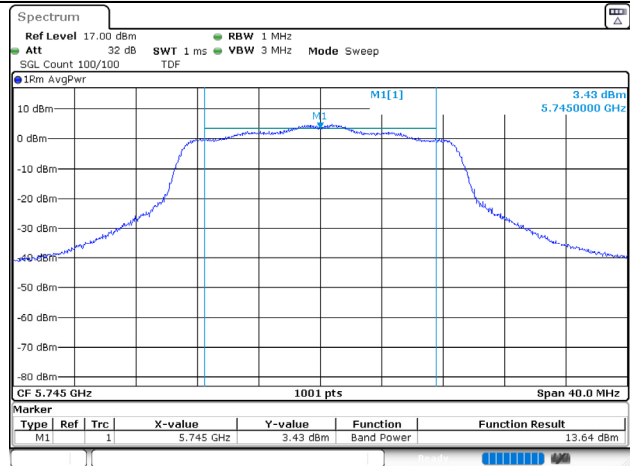
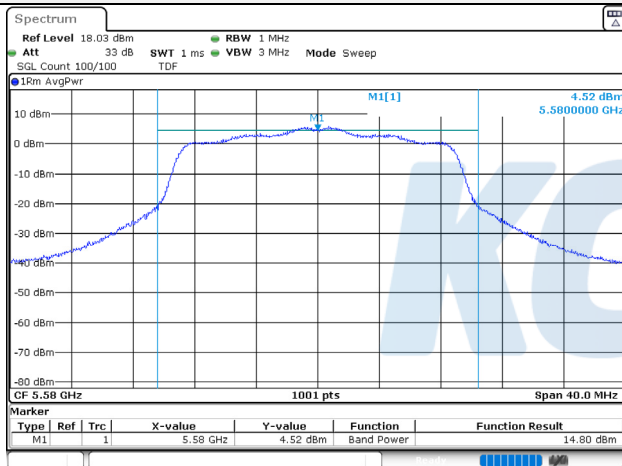
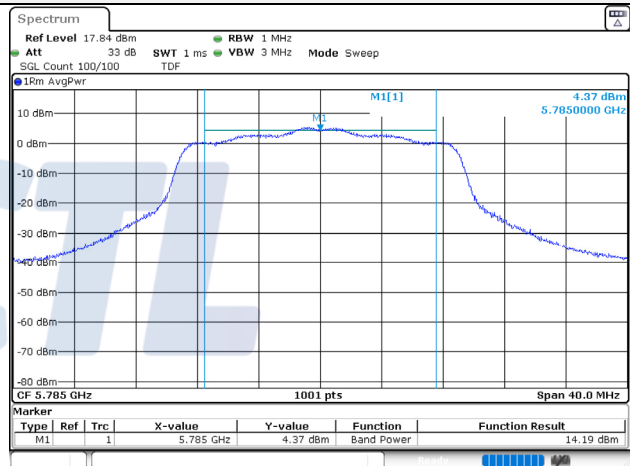
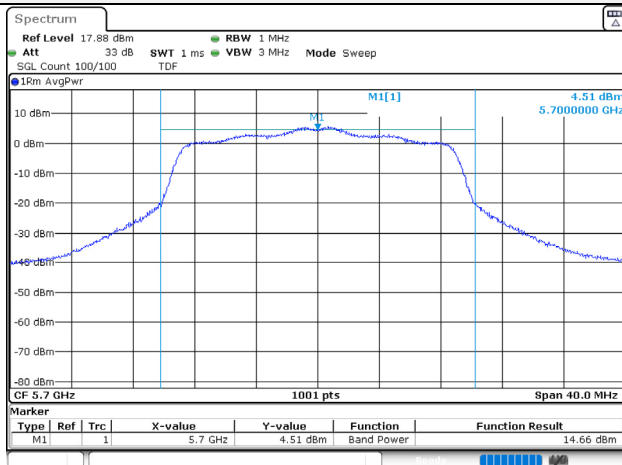
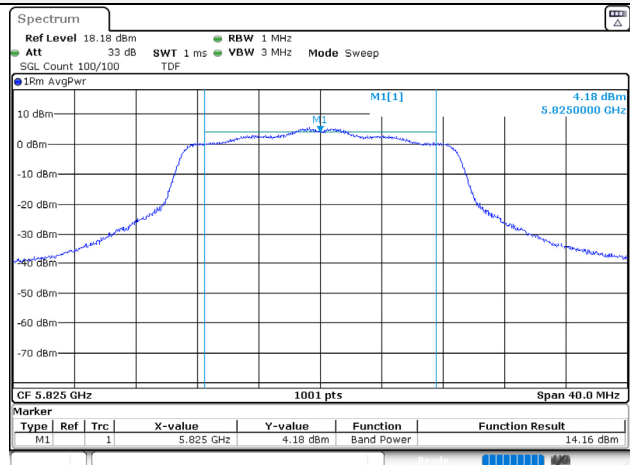
$$\text{Conducted Output power} = \text{Measured power(dB m)} + \text{DCF (dB)}$$

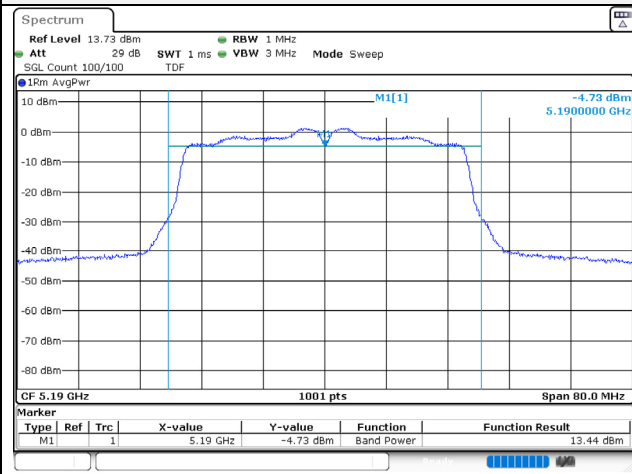
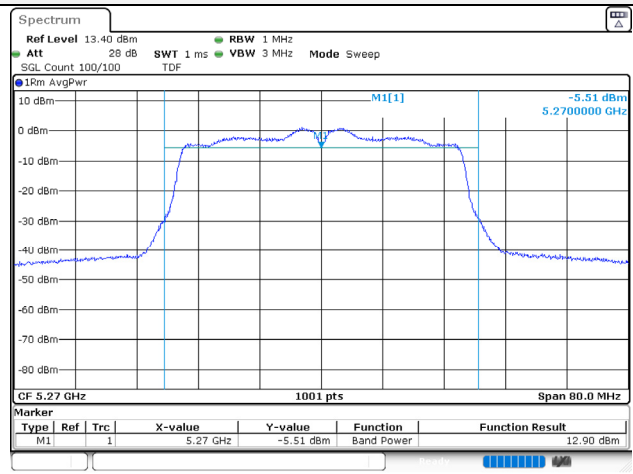
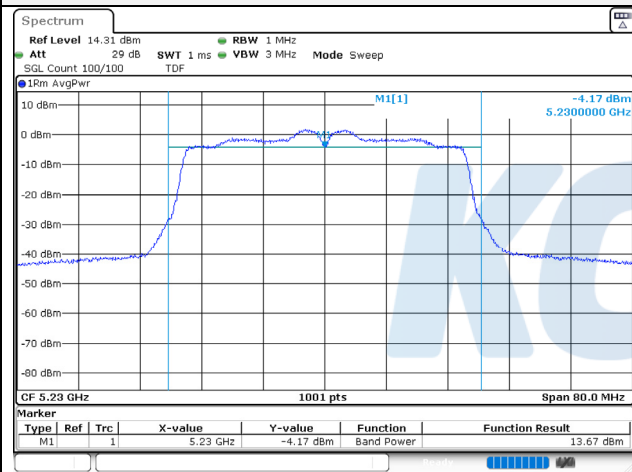
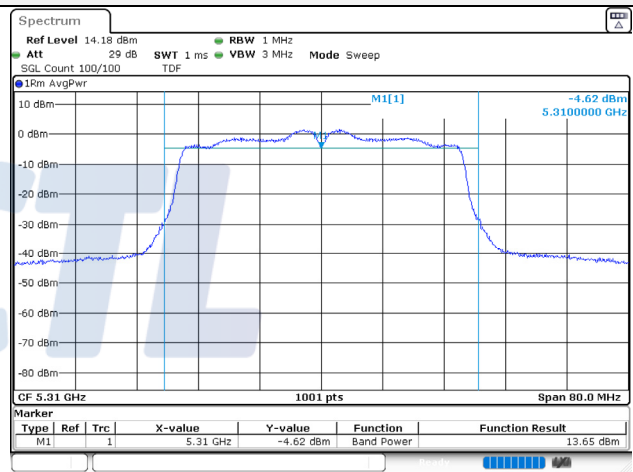
KCTL

UNII-1 / 802.11a / Low ch.**UNII-2A / 802.11a / Low ch.****UNII-1 / 802.11a / Mid ch.****UNII-2A / 802.11a / Mid ch.****UNII-1 / 802.11a / High ch.****UNII-2A / 802.11a / High ch.**

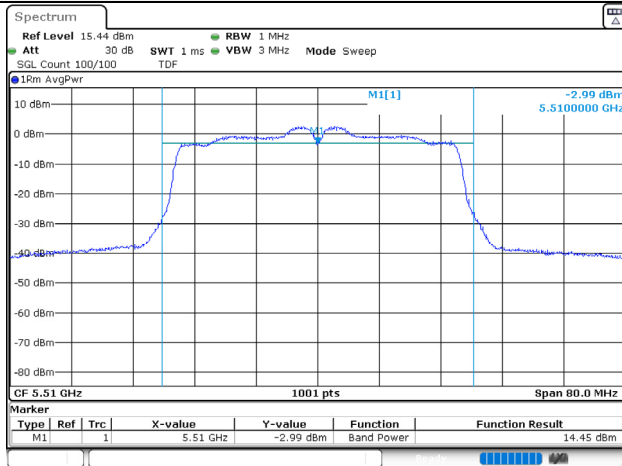
UNII-2C / 802.11a / Low ch.**UNII-3 / 802.11a / Low ch.****UNII-2C / 802.11a / Mid ch.****UNII-3 / 802.11a / Mid ch.****UNII-2C / 802.11a / High ch.****UNII-3 / 802.11a / High ch.**

UNII-1 / 802.11n HT20 / Low ch.**UNII-2A / 802.11n HT20 / Low ch.****UNII-1 / 802.11n HT20 / Mid ch.****UNII-2A / 802.11n HT20 / Mid ch.****UNII-1 / 802.11n HT20 / High ch.****UNII-2A / 802.11n HT20 / High ch.**

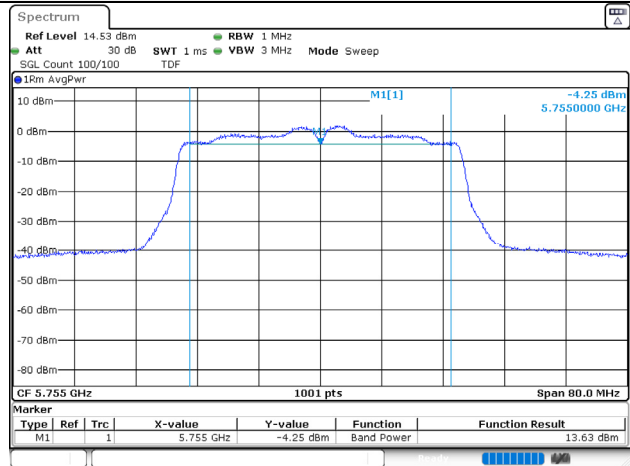
UNII-2C / 802.11n HT20 / Low ch.**UNII-3 / 802.11n HT20 / Low ch.****UNII-2C / 802.11n HT20 / Mid ch.****UNII-3 / 802.11n HT20 / Mid ch.****UNII-2C / 802.11n HT20 / High ch.****UNII-3 / 802.11n HT20 / High ch.**

UNII-1 / 802.11n HT40 / Low ch.**UNII-2A / 802.11n HT40 / Low ch.****UNII-1 / 802.11n HT40 / High ch.****UNII-2A / 802.11n HT40 / High ch.**

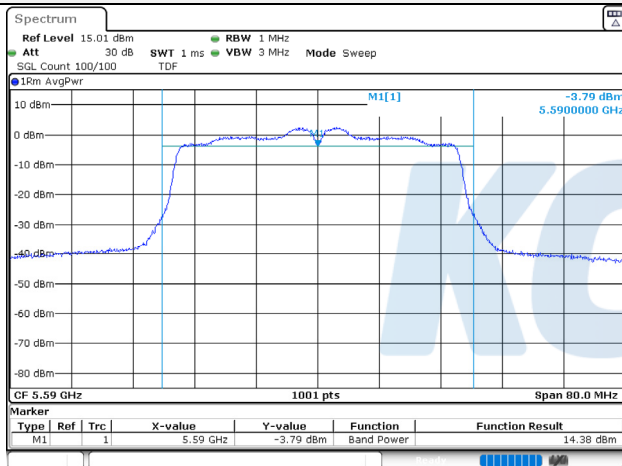
UNII-2C / 802.11n HT40 / Low ch.



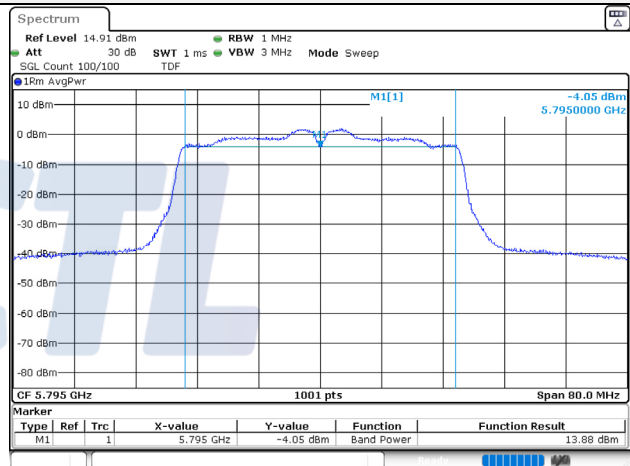
UNII-3 / 802.11n HT40 / Low ch.



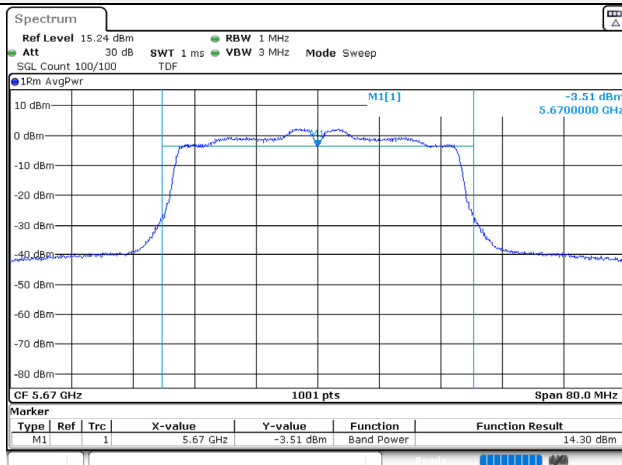
UNII-2C / 802.11n HT40 / Mid ch.



UNII-3 / 802.11n HT40 / High ch.



UNII-2C / 802.11n HT40 / High ch.



Blank