CERTIFICATION TEST REPORT

Report Number. : 4790360891-E3V2

Applicant : SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Model : SM-A137F/DSN

FCC ID : A3LSMA137F

EUT Description : GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2022-04-25

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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-04-22	Initial issue	Sungeun Lee
V2	2022-04-25	Updated to address TCB's question	Sungeun Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION:	GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC
MODEL NUMBER:	SM-A137F/DSN
SERIAL NUMBER:	R38T300APGH, R38T300AJTP (CONDUCTED); R38T4001WSW, R38T4001XEV (RADIATED);
DATE TESTED:	2022-04-07 ~ 2022-04-22;

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Complies

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for infor mational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Sungeun Lee
Suwon Lab Engineer
UL Korea, Ltd.

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2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v05r02.
4. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro
☒ Chamber 1(3m semi-anechoic chamber)
☒ Chamber 2(3m semi-anechoic chamber)
☒ Chamber 3(3m semi-anechoic chamber)
☐ Chamber 4(3m Full-anechoic chamber)
☐ Chamber 5(3m Full-anechoic chamber)

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

28.9 dBuV/m = 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC.
This test report addresses the DTS (WLAN) operational mode.

WiFi operating mode

Frequency rage	Mode	ANT 1
2.4GHz (2412 MHz ~ 2472 MHz)	802.11b SISO	TX/RX
	802.11g SISO	TX/RX
	802.11n(HT20) SISO	TX/RX

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2472	802.11b SISO	18.97	78.89
	802.11g SISO	17.88	61.38
	802.11n(HT20) SISO	17.75	59.57

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.

Frequency	ANT Gain [dBi]
2 412 ~ 2 472	-5.04

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5.4. TESTED CHANNELS LIST

Ch.	Frequency [MHz]	11b [SISO]	11g [SISO]	11n(HT20) [SISO]
1	2 412	O	O	O
2	2 417	O	O	O
3	2 422	O		
4	2 427	O		
5	2 432	O		
6	2 437	O	O	O
10	2 457	O	O	O
11	2 462	O	O	O
12	2 467	O	O	O
13	2 472	O	O	O

Note1: Tested channels are applied to all test items.
Note2: Power Spectral Density was performed on three channels with the highest target power in each mode.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.
Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/High Channels.

Worst case of antenna axis: X

Based on the baseline scan, the worst-case data rates were:
802.11b mode: 1 Mbps 1TX
802.11g mode: 6 Mbps 1TX
802.11n HT20 mode: MCS0 1TX

All radiated and power line conducted tests were performed attached with travel adapter for the worst case condition mode.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37MANS67N2SE3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A BWE	N/A
Earphone	SAMSUNG	GH59-15055A	EHS64AVFWE	N/A

I/O CABLE

I/O Cable List						
Cable No.	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	C to C Type	Shielded	1.0 m	N/A
2	Audio	2	Mini-Jack	Unshielded	0.7 m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable DTS mode.

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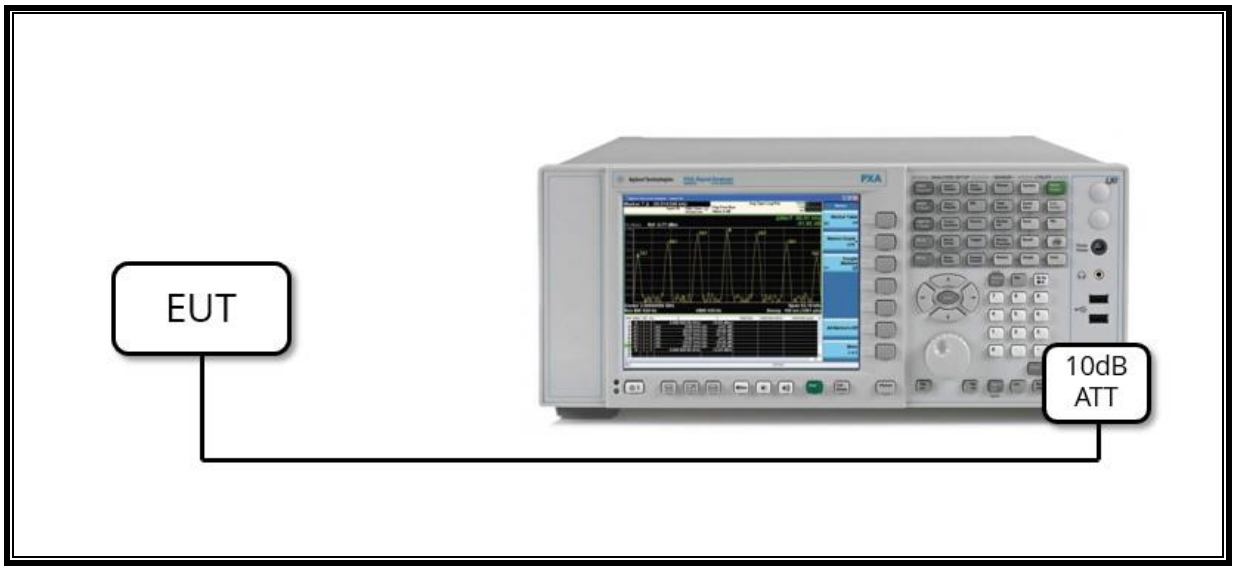
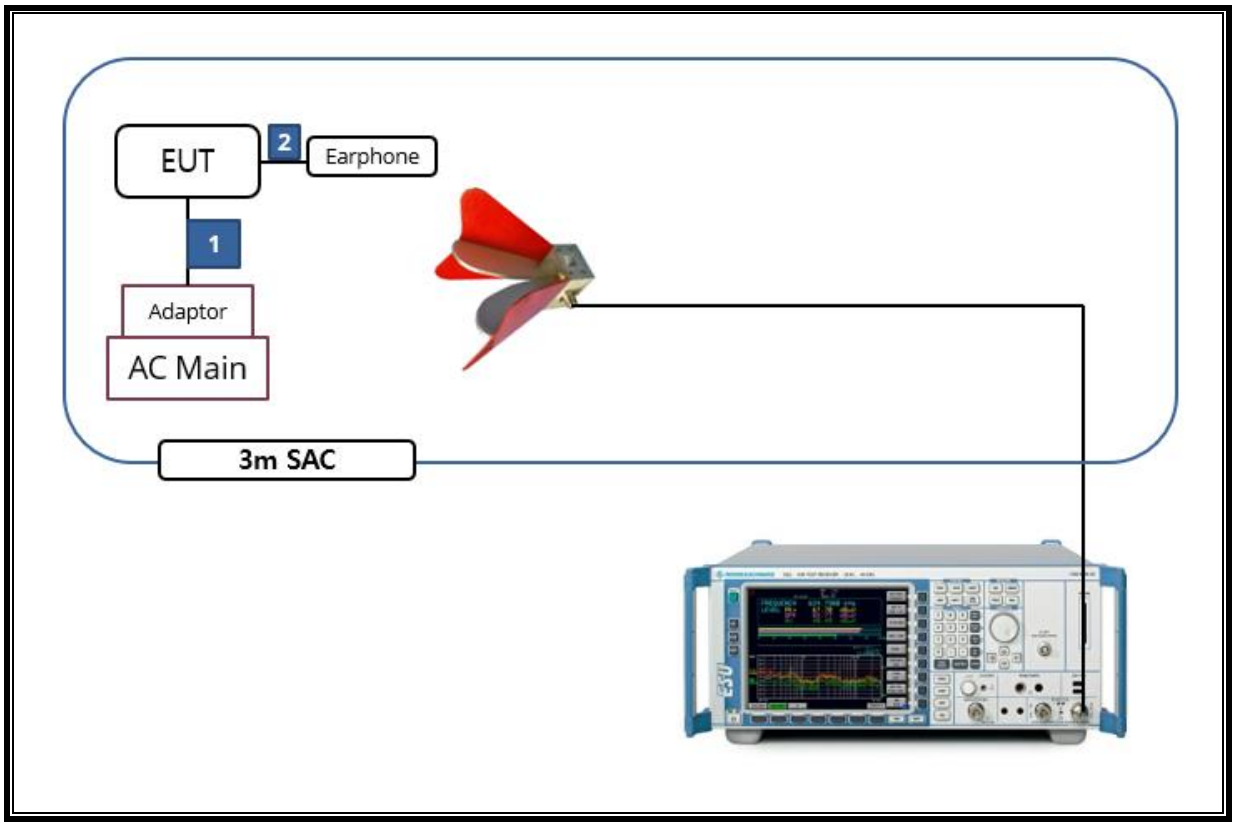
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. MEASUREMENT METHOD

6 dB BW : ANSI C63.10-2013, Section 11.8.2 Option 2

OUTPUT POWER : ANSI C63.10-2013, Section 11.9.2.3.1 Method AVGPM

POWER SPECTRAL DENSITY : ANSI C63.10-2013, Section 11.10.3 & 11.10.5 Method AVGPSD-1 and Method AVGPSD-2

Out-of-band Emissions (Conducted) : ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Non-restricted Bands: ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Restricted Bands : ANSI C63.10-2013, Section 11.12 Emissions in restricted frequency bands

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2

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7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	2022-08-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022-07-27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022-07-27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022-08-15
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2022-08-04
Preamplifier	ETS	3116C-PA	00168841	2022-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022-08-02
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2022-08-04
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2022-08-04
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2023-01-18
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2023-01-19
Average Power Sensor	Agilent / HP	U2000	MY54270007	2022-08-04
Average Power Sensor	Agilent / HP	U2000	MY54260010	2022-08-04
Attenuator	PASTERNACK	PE7087-10	A001	2022-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2022-08-03
Attenuator	PASTERNACK	PE7004-10	2	2022-08-02
Attenuator	PASTERNACK	PE7087-10	A009	2022-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	019	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	020	2022-08-02
LISN	R&S	ENV-216	101837	2022-08-05
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06

UL Software			
Description	**Manufacturer**	**Model**	**Version**
Radiated software	UL	UL EMC	Ver 9.5
AC Line Conducted software	UL	UL EMC	Ver 9.5

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8. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Bandwidth(6dB)	> 500kHz	Conducted	PASS
2.1051, 15.247(d)	Band Edge / Conducted Spurious Emission	-30 dBc		PASS
15.247 (b)(3)	TX conducted output power	< 30 dBm		PASS
15.247(e)	PSD	< 8 dBm/3kHz		PASS
15.207(a)	AC Power Line conducted emissions	Section 11	Power Line conducted	PASS
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	PASS

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

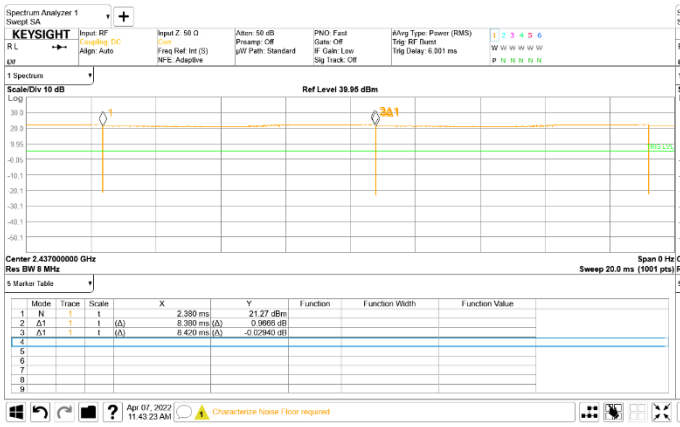
LIMITS

None; for reporting purposes only.

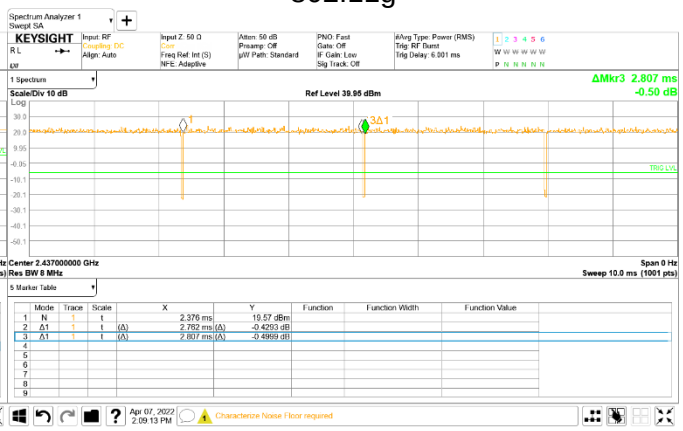
Mode	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]	1/T Minimum VBW[kHz]
802.11b SISO	8.380	8.420	0.995	99.525	-	0.119
802.11g SISO	2.762	2.807	0.984	98.397	-	0.362
802.11n(HT20) SISO	2.548	2.593	0.983	98.265	-	0.392

Note. According to ANSI C63.10 Section 11.6, do not apply the Duty Cycle Correction Factor judging that a duty cycle of greater than or equal to 98% is continuous signal.

802.11b



802.11g



802.11n HT20

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9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)
The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 D01 15.247 Meas Guidance: The transmitter output is connected to a spectrum analyzer with the RBW set to100 kHz, the VBW >= 3 x RBW, peak detector and max hold.

ANSI C63.10-2013, Section 11.8.1

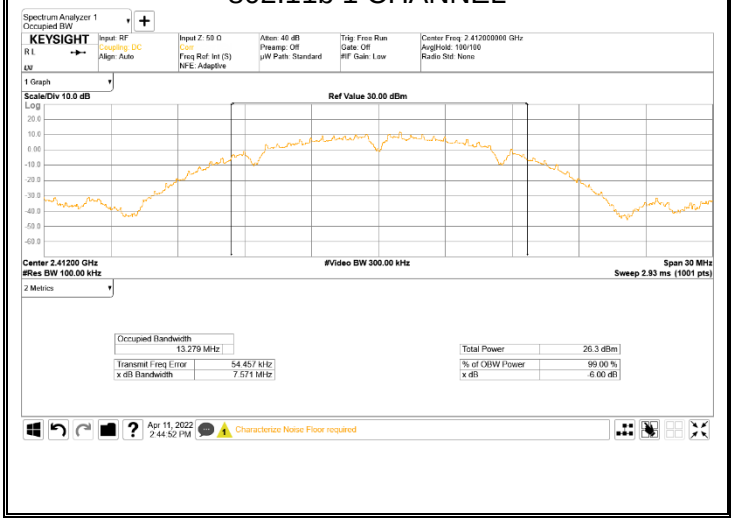
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT1

802.11b 1 CHANNEL



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9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	**2 412**	**7.571**	0.5
2	2 417	8.034	
3	2 422	8.061	
4	2 427	8.524	
5	2 432	8.082	
6	2 437	8.060	
10	2 457	8.594	
11	2 462	9.034	
12	2 467	8.101	
13	2 472	8.061	
Worst		**7.571**	

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	16.360	0.5
2	2 417	15.690	
6	**2 437**	**13.860**	
10	2 457	15.740	
11	2 462	16.300	
12	2 467	15.760	
13	2 472	16.210	
Worst		**13.860**	

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	17.620	0.5
2	2 417	16.380	
6	2 437	13.760	
10	2 457	14.670	
11	2 462	15.940	
12	2 467	17.580	
13	**2 472**	**11.300**	
Worst		**11.300**	

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9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband RF frame average power sensor.
The cable assembly insertion loss and duty cycle correction factor was entered as an offset in the power sensor to allow for direct reading of power.
Output power measurement was performed utilizing the 8.3.2.3 under KDB558074 D01 15.247 Meas Guidance.

ANSI C63.10-2013, Section 11.9.2.3.1 Method AVGPM

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9.3.1. TEST RESULTS

- 802.11b,g,n mode

Mode	Channel	Frequency [MHz]	Average Power [dBm]	Power Limit [dBm]
802.11b	1	2 412	15.78	30.00
	2	2 417	15.77	
	3	2 422	15.95	
	4	2 427	17.92	
	5	2 432	18.01	
	6	2 437	18.79	
	7	2 442	18.95	
	10	**2 457**	**18.97**	
	11	2 462	18.05	
	12	2 467	5.17	
	13	2 472	1.35	
Worst Case			**18.97**	
802.11g	1	2 412	15.72	
	2	2 417	17.72	
	6	2 437	17.74	
	10	**2 457**	**17.88**	
	11	2 462	15.53	
	12	2 467	5.66	
	13	2 472	1.86	
Worst Case			**17.88**	
802.11n HT20	1	2 412	14.73	
	2	2 417	17.63	
	6	2 437	17.62	
	10	**2 457**	**17.75**	
	11	2 462	15.75	
	12	2 467	5.62	
	13	2 472	1.94	
Worst Case			**17.75**	

- Calculation of Output Power result
Average Power = Meas. Power + Duty Cycle CF

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9.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the section8.4 under KDB558074 D01 15.247 Meas Guidance.

ANSI C63.10-2013, Section 11.10.3 & 11.10.5

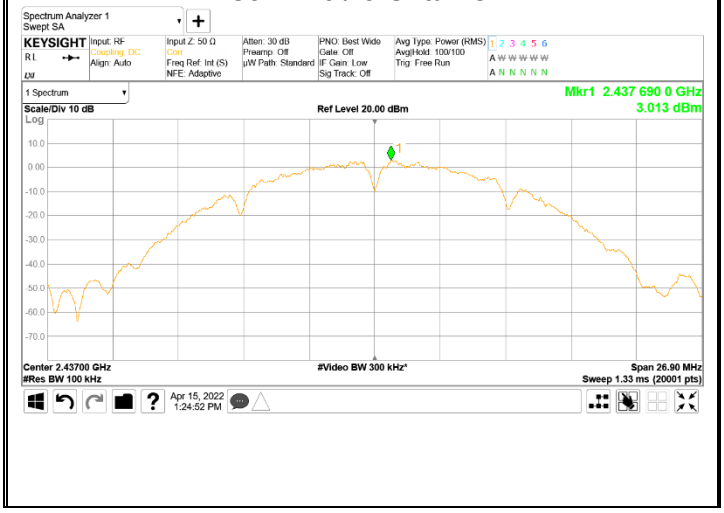
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT 1

802.11b / 6 Channel



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9.4.1. 802.11b/g/n HT20 MODE TEST RESULTS

Mode	Channel	Frequency [MHz]	Meas PSD [dBm/100kHz]	DCCF	Total Corr'd PSD [dBm/100kHz]	PSD Limit [dBm/3kHz]
802.11b	4	2 427	1.336	-	1.336	8.00 Note
	6	**2 437**	**3.013**	**-**	**3.013**	
	11	2 462	1.738	-	1.738	
802.11g	2	2 417	-1.180	-	-1.180	
	6	2 437	-0.963	-	-0.963	
	10	2 457	-0.824	-	-0.824	
802.11n HT20	2	2 417	-1.382	-	-1.382	
	6	2 437	-0.819	-	-0.819	
	10	2 457	-1.074	-	-1.074	

- Calculation of Output PSD result
- 1TX : Corr'd PSD = Meas PSD + Duty Cycle CF
Note1. RBW 100kHz measurement data is lower than 3kHz limit.
Note2. Power Spectral Density was performed on three channels with the highest target power in each mode.

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9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Output power was measured based on the use of average measurement, therefore the required attenuation is 30 dB.

TEST PROCEDURE

KDB 558074 D01 v05r02, Section 8.5
ANSI C63.10-2013, Section 11.11.3

RESULTS

- Please refer to the next page

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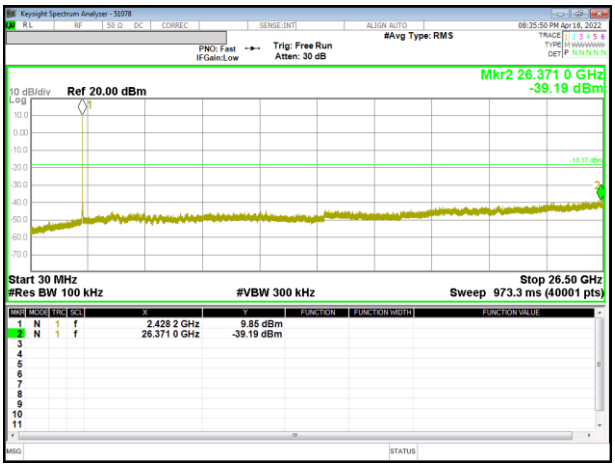
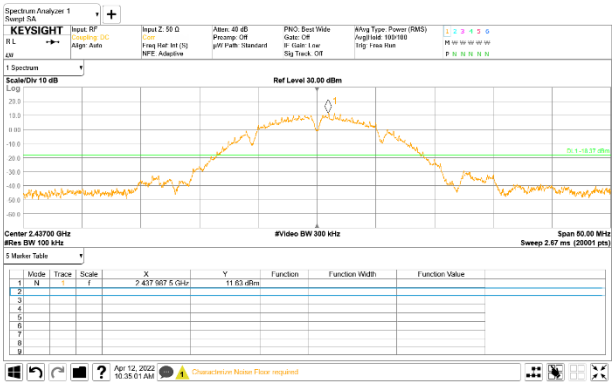
9.5.1. 802.11b MODE

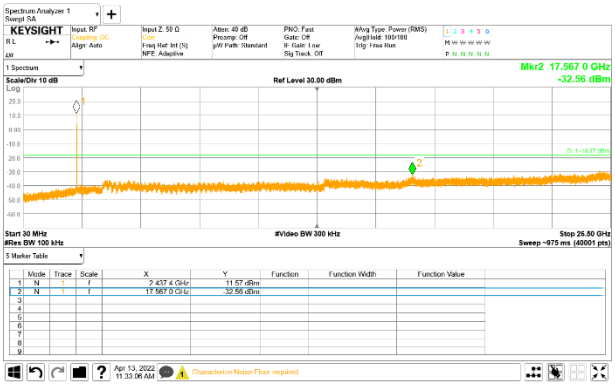
4 Channel Band-edge



Out-Of-Band 4 Channel

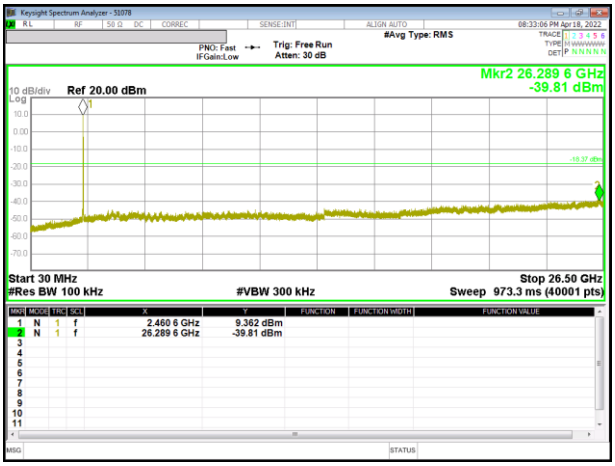


In-Band Reference Level



Out-Of-Band 6 Channel

11 Channel Band-edge



Out-Of-Band 11 Channel

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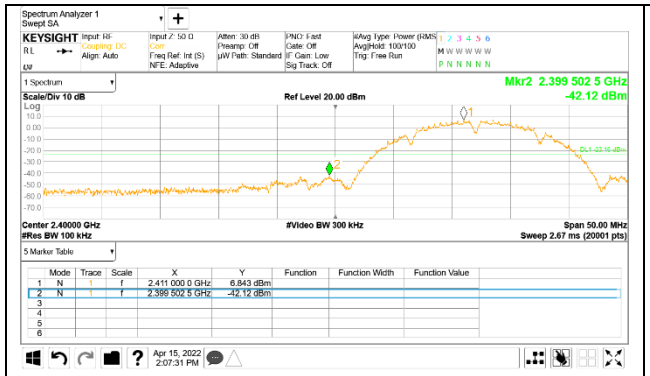
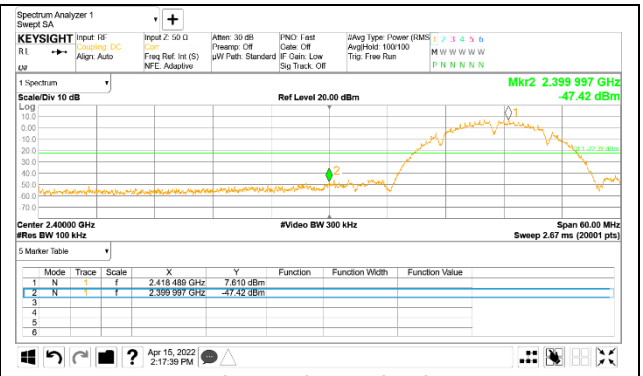
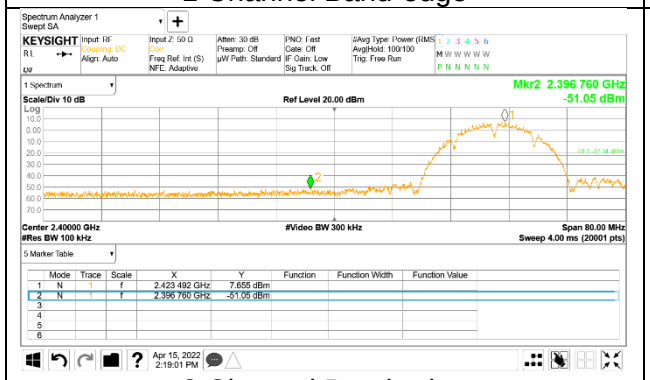


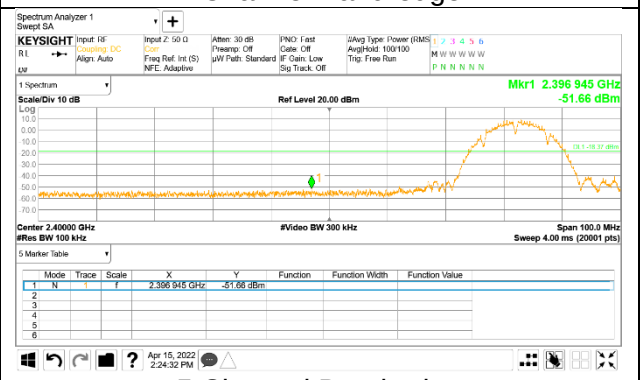
1 Channel Band-edge



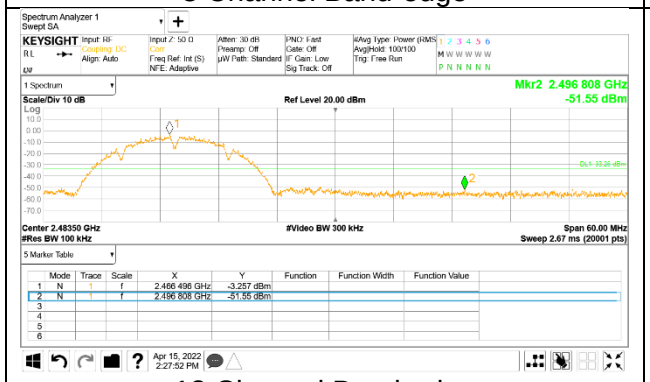
2 Channel Band-edge



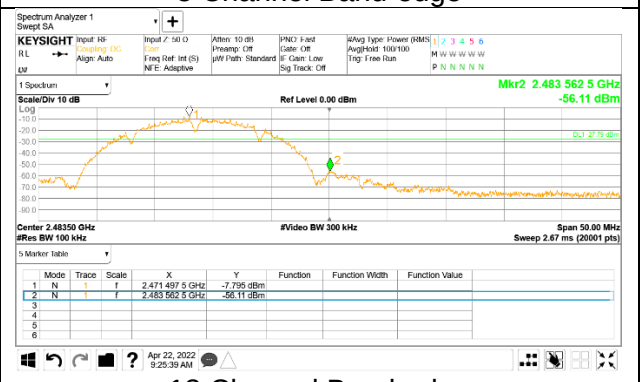
3 Channel Band-edge



5 Channel Band-edge



12 Channel Band-edge



13 Channel Band-edge

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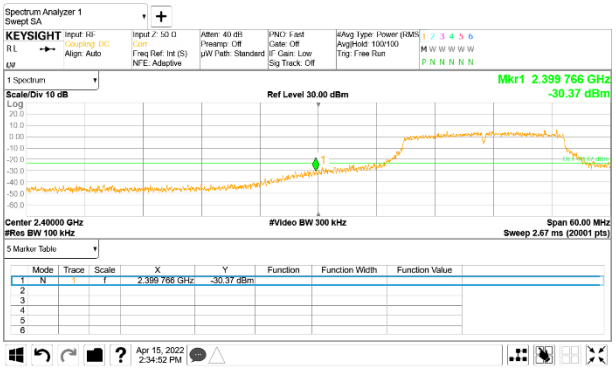
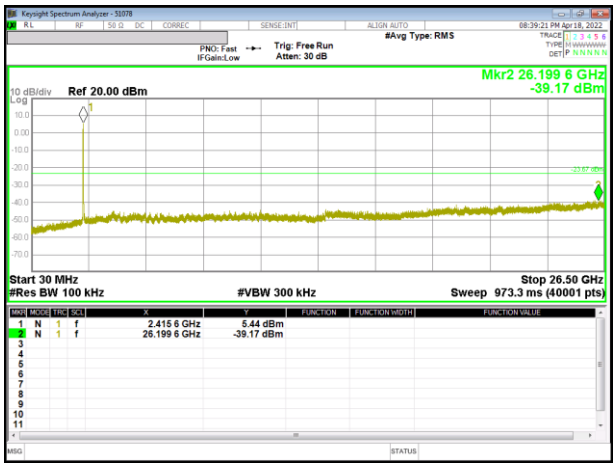
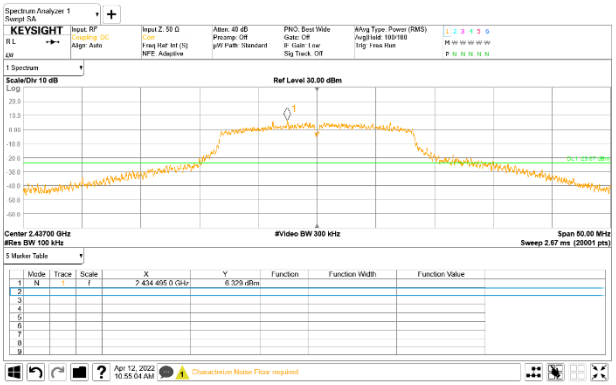
9.5.2. 802.11g MODE



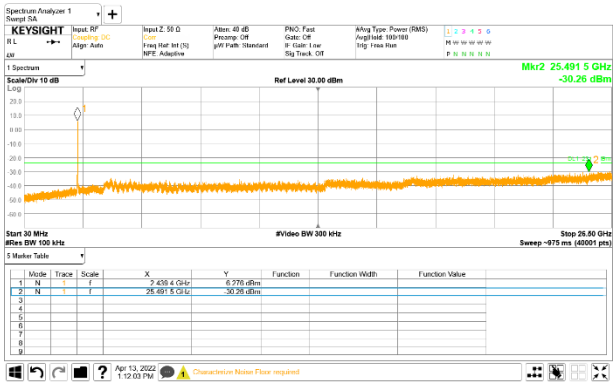
2 Channel Band-edge



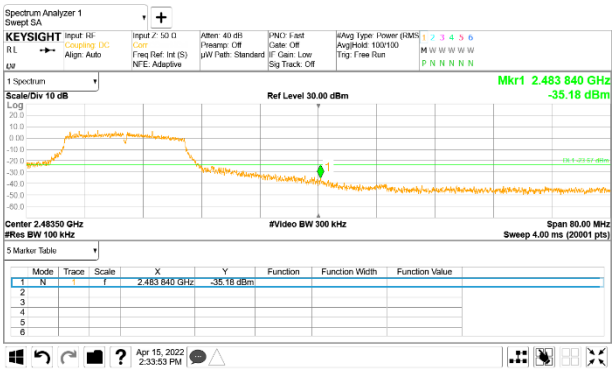
Out-Of-Band 2 Channel



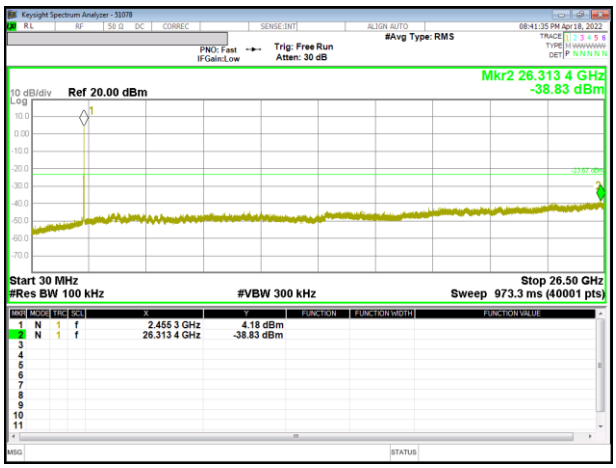
In-Band Reference Level



Out-Of-Band 6 Channel



10 Channel Band-edge



Out-Of-Band 10 Channel

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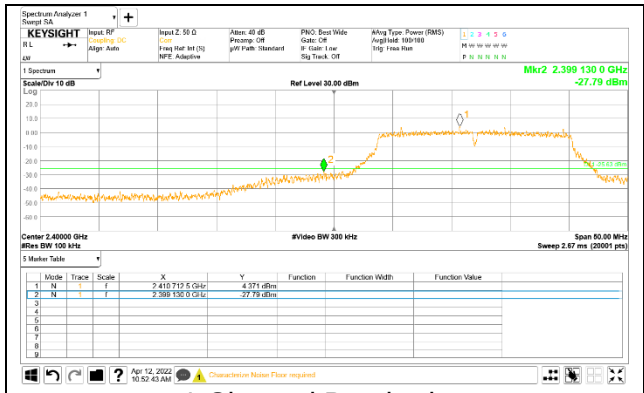
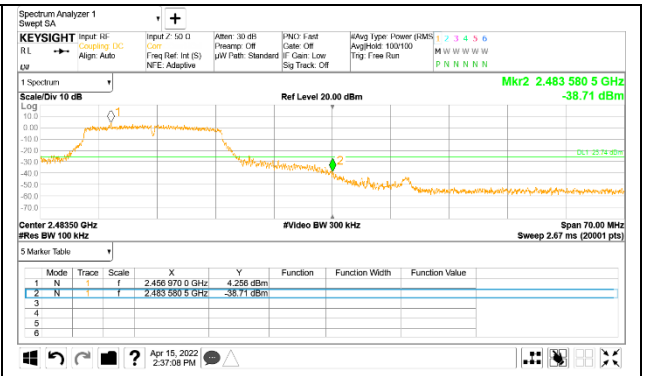
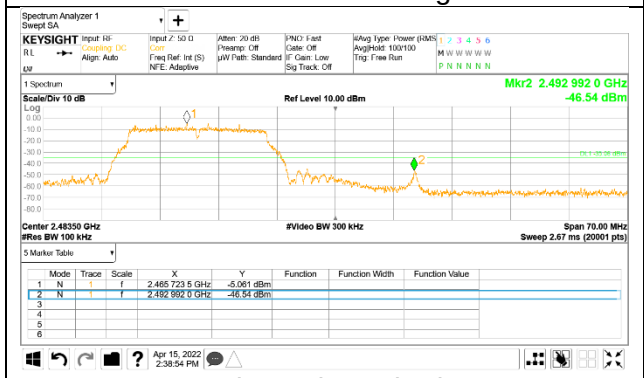


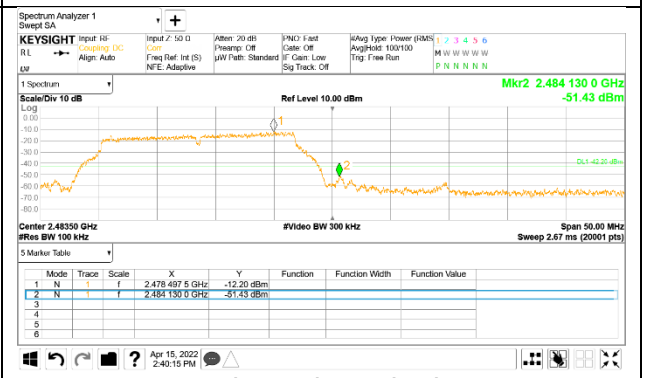
1 Channel Band-edge



11 Channel Band-edge



12 Channel Band-edge



13 Channel Band-edge

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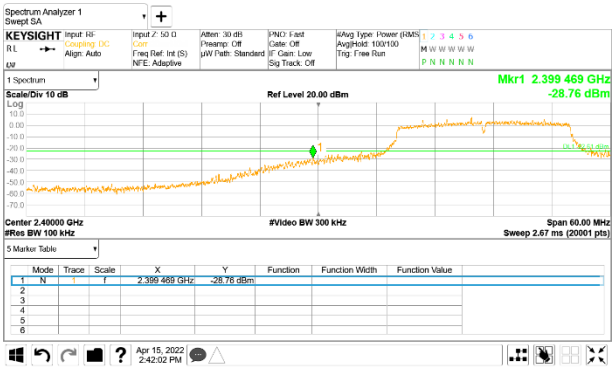
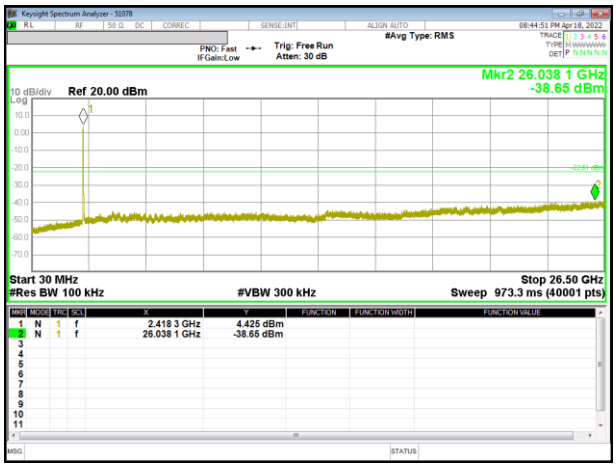
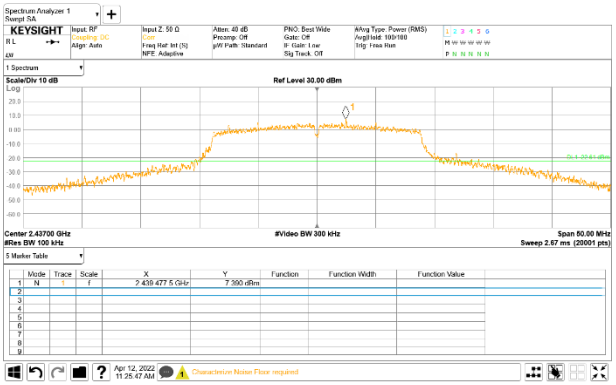
9.5.3. 802.11n HT20 MODE



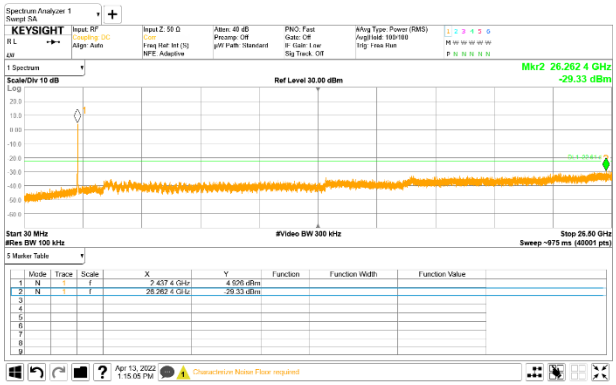
2 Channel Band-edge



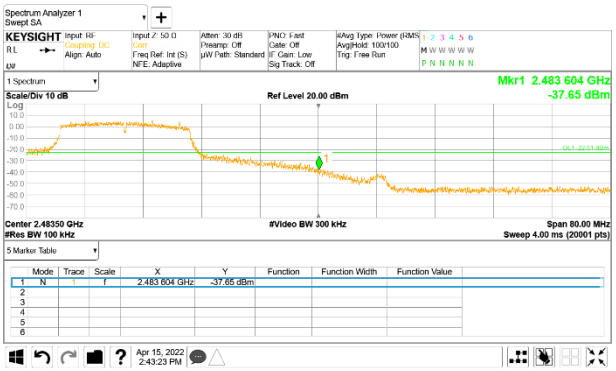
Out-Of-Band 2 Channel



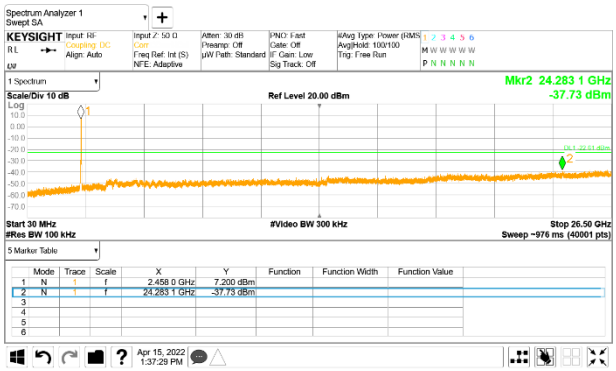
In-Band Reference Level



Out-Of-Band 6 Channel



10 Channel Band-edge



Out-Of-Band 10 Channel

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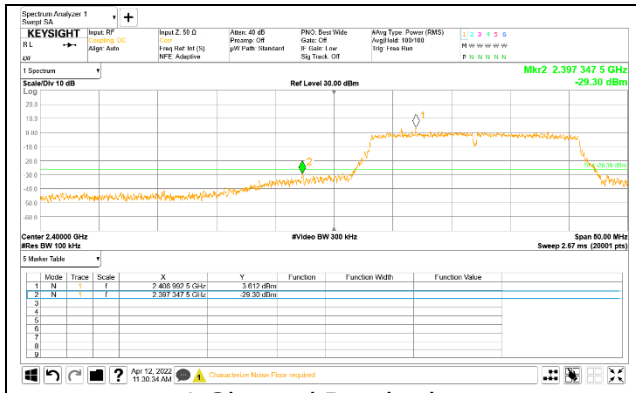
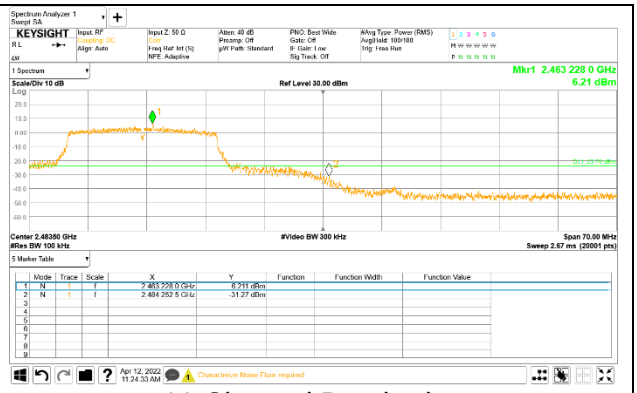
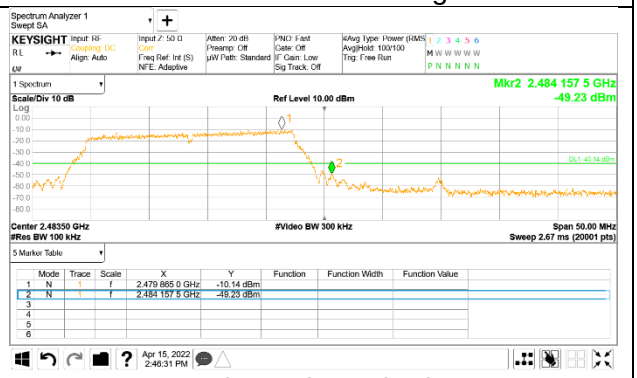


1 Channel Band-edge



11 Channel Band-edge

12 Channel Band-edge



13 Channel Band-edge

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10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	156.7 ~ 156.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	162.0125 ~	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	167.17	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	167.72 ~ 173.2	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	240 ~ 285	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	322 ~ 335.4	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	399.90 ~ 410	3345.8 ~ 3358		
		608 ~ 614	3600 ~ 4400		
		960 ~ 1240			

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

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TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1 GHz and 150 cm for above 1 GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements.
(Restriced bandedge, Final detection of spurious harmonic emissions)

Duty cycle factor = 10log (1/x) For this sample:

802.11b SISO mode = 0 dB (duty cycle > 98%);
802.11g SISO mode = 0 dB (duty cycle > 98%);
802.11n(HT20) SISO mode = 0 dB (duty cycle > 98%);

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note : Emission was pre-scanned from 9 kHz to 30 MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

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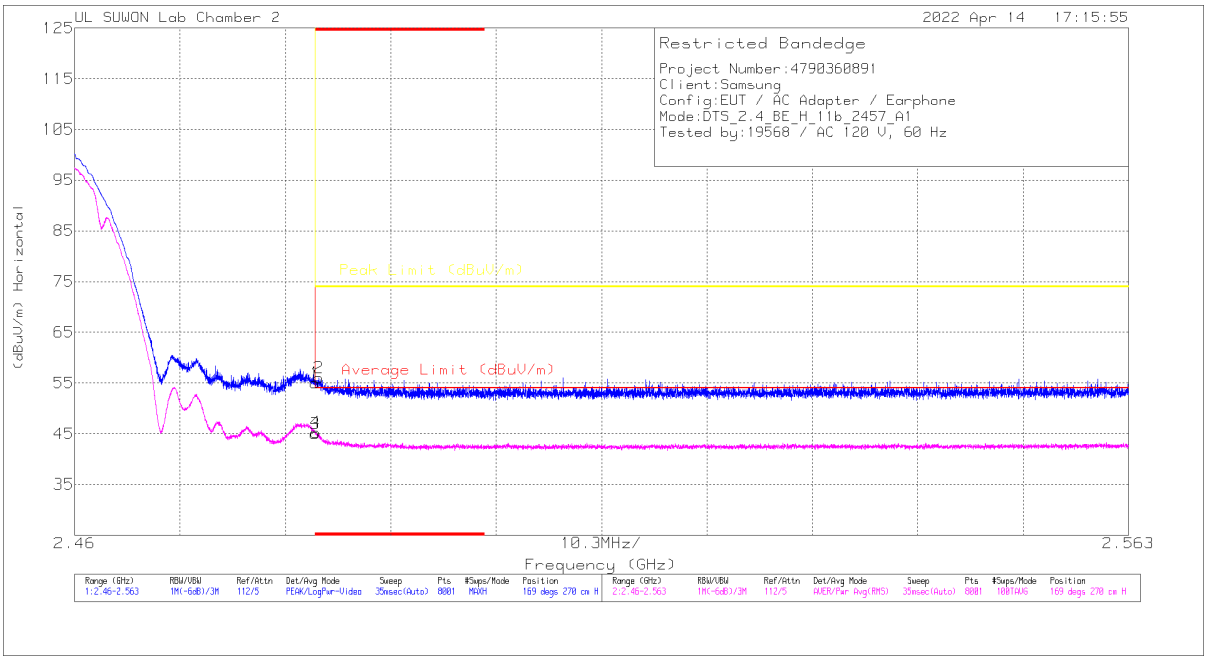
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

BANDEDGE (ANT1 WORST CASE: 10 CHANNEL)

Horizontal RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	43.47	Pk	32	-20.4	0	55.07	-	-	474	-18.93	169	270	H
2	* 2.48386	44.44	Pk	32	-20.4	0	56.04	-	-	74	-17.96	169	270	H
3	* 2.48351	33.4	RMS	32	-20.4	0	45	54	-9	-	-	169	270	H
4	* 2.48357	33.65	RMS	32	-20.4	0	45.25	54	-8.75	-	-	169	270	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	42.07	Pk	31.90	-20.60	0.00	53.37	-	-	74.00	-20.63	124	122	H
		* 2.38609	44.35	Pk	31.90	-20.60	0.00	55.65	-	-	74.00	-18.35	124	122	H
		* 2.39	31.09	RMS	31.90	-20.60	0.00	42.39	54.00	-11.61	-	-	124	122	H
		* 2.38748	32.13	RMS	31.90	-20.60	0.00	43.43	54.00	-10.57	-	-	124	122	H
		* 2.39	40.65	Pk	31.90	-20.60	0.00	51.95	-	-	74.00	-22.05	196	116	V
		* 2.32457	43.70	Pk	31.80	-20.60	0.00	54.90	-	-	74.00	-19.10	196	116	V
		* 2.39	31.08	RMS	31.90	-20.60	0.00	42.38	54.00	-11.62	-	-	196	116	V
		* 2.38652	31.86	RMS	31.90	-20.60	0.00	43.16	54.00	-10.84	-	-	196	116	V
2417	ANT1	* 2.39	41.31	Pk	31.90	-20.60	0.00	52.61	-	-	74.00	-21.39	163	224	H
		* 2.32722	44.31	Pk	31.80	-20.70	0.00	55.41	-	-	74.00	-18.59	163	224	H
		* 2.39	31.57	RMS	31.90	-20.60	0.00	42.87	54.00	-11.13	-	-	163	224	H
		* 2.389	32.18	RMS	31.90	-20.60	0.00	43.48	54.00	-10.52	-	-	163	224	H
		* 2.39	41.60	Pk	31.90	-20.60	0.00	52.90	-	-	74.00	-21.10	216	358	V
		* 2.34755	43.80	Pk	31.80	-20.60	0.00	55.00	-	-	74.00	-19.00	216	358	V
		* 2.39	31.13	RMS	31.90	-20.60	0.00	42.43	54.00	-11.57	-	-	216	358	V
		* 2.38855	31.58	RMS	31.90	-20.60	0.00	42.88	54.00	-11.12	-	-	216	358	V
2422	ANT1	* 2.39	41.21	Pk	31.90	-20.60	0.00	52.51	-	-	74.00	-21.49	117	245	H
		* 2.38998	43.88	Pk	31.90	-20.60	0.00	55.18	-	-	74.00	-18.82	117	245	H
		* 2.39	30.88	RMS	31.90	-20.60	0.00	42.18	54.00	-11.82	-	-	117	245	H
		* 2.37314	31.83	RMS	31.90	-20.60	0.00	43.13	54.00	-10.87	-	-	117	245	H
		* 2.39	40.65	Pk	31.90	-20.60	0.00	51.95	-	-	74.00	-22.05	226	400	V
		* 2.31387	44.33	Pk	31.70	-20.60	0.00	55.43	-	-	74.00	-18.57	226	400	V
		* 2.39	31.00	RMS	31.90	-20.60	0.00	42.30	54.00	-11.70	-	-	226	400	V
		* 2.38229	31.50	RMS	31.90	-20.60	0.00	42.80	54.00	-11.20	-	-	226	400	V
2427	ANT1	* 2.39	40.75	Pk	31.90	-20.60	0.00	52.05	-	-	74.00	-21.95	177	400	H
		* 2.38494	43.51	Pk	31.90	-20.60	0.00	54.81	-	-	74.00	-19.19	177	400	H
		* 2.39	31.03	RMS	31.90	-20.60	0.00	42.33	54.00	-11.67	-	-	177	400	H
		* 2.37797	31.46	RMS	31.90	-20.60	0.00	42.76	54.00	-11.24	-	-	177	400	H
		* 2.39	40.58	Pk	31.90	-20.60	0.00	51.88	-	-	74.00	-22.12	216	318	V
		* 2.37994	43.93	Pk	31.90	-20.60	0.00	55.23	-	-	74.00	-18.77	216	318	V
		* 2.39	31.01	RMS	31.90	-20.60	0.00	42.31	54.00	-11.69	-	-	216	318	V
		* 2.38254	31.34	RMS	31.90	-20.60	0.00	42.64	54.00	-11.36	-	-	216	318	V
2457	ANT1	* 2.48351	43.47	Pk	32.00	-20.40	0.00	55.07	-	-	474.00	-18.93	169	270	H
		* 2.48386	44.44	Pk	32.00	-20.40	0.00	56.04	-	-	74.00	-17.96	169	270	H
		* 2.48351	33.40	RMS	32.00	-20.40	0.00	45.00	54.00	-9.00	-	-	169	270	H
		* 2.48357	33.65	RMS	32.00	-20.40	0.00	45.25	54.00	**-8.75**	-	-	169	270	H
		* 2.48351	42.41	Pk	32.00	-20.40	0.00	54.01	-	-	74.00	-19.99	209	383	V
		2.547	44.16	Pk	32.10	-20.30	0.00	55.96	-	-	74.00	-18.04	209	383	V
		* 2.48351	32.68	RMS	32.00	-20.40	0.00	44.28	54.00	-9.72	-	-	209	383	V
		* 2.48357	32.87	RMS	32.00	-20.40	0.00	44.47	54.00	-9.53	-	-	209	383	V
2462	ANT1	* 2.48351	41.78	Pk	32.00	-20.40	0.00	53.38	-	-	74.00	-20.62	163	239	H
		* 2.48693	44.94	Pk	32.00	-20.40	0.00	56.54	-	-	74.00	**-17.46**	163	239	H
		* 2.48351	33.51	RMS	32.00	-20.40	0.00	45.11	54.00	-8.89	-	-	163	239	H
		* 2.48355	33.41	RMS	32.00	-20.40	0.00	45.01	54.00	-8.99	-	-	163	239	H
		* 2.48351	42.08	Pk	32.00	-20.40	0.00	53.68	-	-	74.00	-20.32	197	108	V
		2.535	43.68	Pk	32.10	-20.40	0.00	55.38	-	-	74.00	-18.62	197	108	V
		* 2.48351	31.83	RMS	32.00	-20.40	0.00	43.43	54.00	-10.57	-	-	197	108	V
		* 2.48357	32.30	RMS	32.00	-20.40	0.00	43.90	54.00	-10.10	-	-	197	108	V
2467	ANT1	* 2.48351	40.82	Pk	32.00	-20.40	0.00	52.42	-	-	74.00	-21.58	160	240	H
		2.529	43.89	Pk	32.10	-20.40	0.00	55.59	-	-	74.00	-18.41	160	240	H
		* 2.48351	31.68	RMS	32.00	-20.40	0.00	43.28	54.00	-10.72	-	-	160	240	H
		* 2.48369	31.86	RMS	32.00	-20.40	0.00	43.46	54.00	-10.54	-	-	160	240	H
		* 2.48351	42.13	Pk	32.00	-20.40	0.00	53.73	-	-	74.00	-20.27	197	107	V
		2.505	43.82	Pk	32.10	-20.40	0.00	55.52	-	-	74.00	-18.48	197	107	V
		* 2.48351	31.32	RMS	32.00	-20.40	0.00	42.92	54.00	-11.08	-	-	197	107	V
		2.560	31.23	RMS	32.20	-20.20	0.00	43.23	54.00	-10.77	-	-	197	107	V
2472	ANT1	* 2.48351	41.80	Pk	32.00	-20.40	0.00	53.40	-	-	74.00	-20.60	160	141	H
		* 2.49687	44.52	Pk	32.10	-20.40	0.00	56.22	-	-	74.00	-17.78	160	141	H
		* 2.48351	31.64	RMS	32.00	-20.40	0.00	43.24	54.00	-10.76	-	-	160	141	H
		* 2.48364	32.33	RMS	32.00	-20.40	0.00	43.93	54.00	-10.07	-	-	160	141	H
		* 2.48351	39.90	Pk	32.00	-20.40	0.00	51.50	-	-	74.00	-22.50	197	104	V
		2.507	43.63	Pk	32.10	-20.40	0.00	55.33	-	-	74.00	-18.67	197	104	V
		* 2.48351	31.29	RMS	32.00	-20.40	0.00	42.89	54.00	-11.11	-	-	197	104	V
		* 2.48381	31.70	RMS	32.00	-20.40	0.00	43.30	54.00	-10.70	-	-	197	104	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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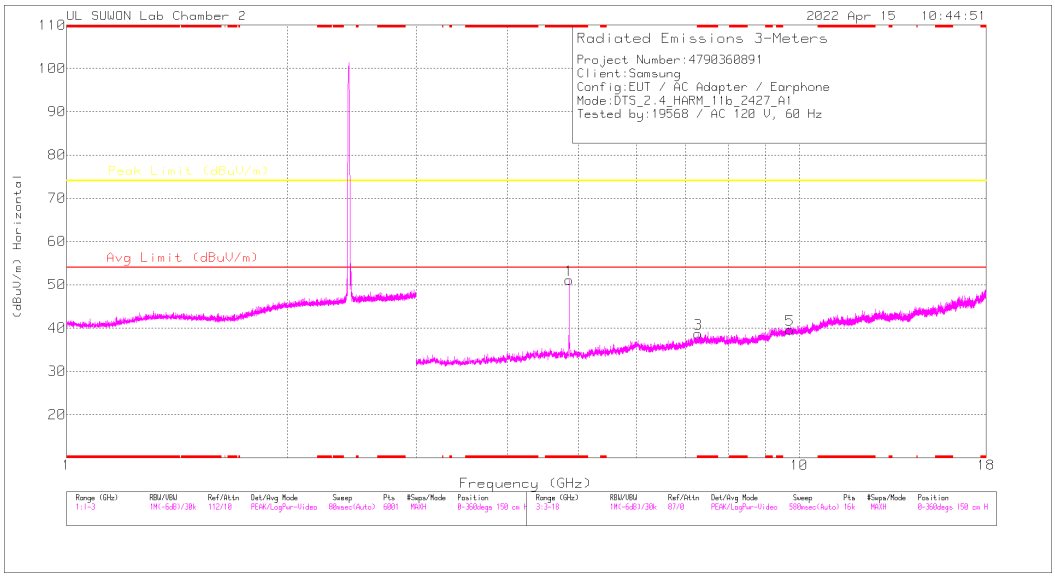
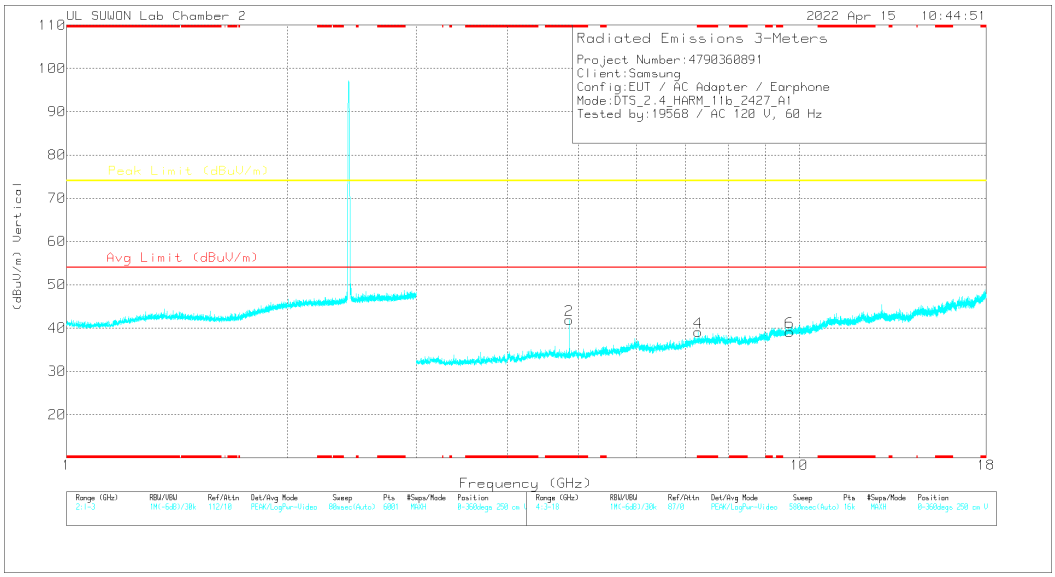
HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 4 CHANNEL) RESULTS



HORIZONTAL



VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016872 4	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.85405	47.52	PK2	34.1	-28.1	0	53.52	-	-	74	-20.48	14	111	H
* 4.854	44.74	MAv1	34.1	-28.1	0	50.74	54	-3.26	-	-	14	111	H
* 4.8541	43.58	PK2	34.1	-28.1	0	49.58	-	-	74	-24.42	288	380	V
* 4.85401	39.57	MAv1	34.1	-28.1	0	45.57	54	-8.43	-	-	288	380	V
* 7.27947	36.37	PK2	36.2	-25.4	0	47.17	-	-	74	-26.83	111	100	H
* 7.28169	26.15	MAv1	36.2	-25.3	0	37.05	54	-16.95	-	-	111	100	H
* 7.28106	37.58	PK2	36.2	-25.3	0	48.48	-	-	74	-25.52	277	100	V
* 7.2818	27.41	MAv1	36.2	-25.3	0	38.31	54	-15.69	-	-	277	100	V
9.7114	32.7	PK2	37.1	-21.2	0	48.6	-	-	74	-25.4	0	100	H
9.71163	32.65	PK2	37.1	-21.2	0	48.55	-	-	74	-25.45	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 4.824	47.15	PK2	34.10	-28.10	0.00	53.15	-	-	74.00	-20.85	22	103	H
		* 4.824	44.34	MAv1	34.10	-28.10	0.00	50.34	54.00	-3.66	-	-	22	103	H
		* 4.82406	46.35	PK2	34.10	-28.10	0.00	52.35	-	-	74.00	-21.65	297	385	V
		* 4.82397	43.18	MAv1	34.10	-28.10	0.00	49.18	54.00	-4.82	-	-	297	385	V
		7.235	39.11	PK2	36.20	-25.50	0.00	49.81	-	-	74.00	-24.19	107	113	H
		7.237	39.25	PK2	36.20	-25.50	0.00	49.95	-	-	74.00	-24.05	248	103	V
		9.658	32.84	PK2	37.00	-21.40	0.00	48.44	-	-	74.00	-25.56	0	100	H
		9.644	32.50	PK2	37.00	-21.40	0.00	48.10	-	-	74.00	-25.90	360	100	V
2417	ANT1	* 4.83397	47.53	PK2	34.10	-28.10	0.00	53.53	-	-	74.00	**-20.47**	27	100	H
		* 4.83397	44.67	MAv1	34.10	-28.10	0.00	50.67	54.00	-3.33	-	-	27	100	H
		* 4.83397	45.83	PK2	34.10	-28.10	0.00	51.83	-	-	74.00	-22.17	298	385	V
		* 4.834	42.32	MAv1	34.10	-28.10	0.00	48.32	54.00	-5.68	-	-	298	385	V
		* 7.46213	35.01	PK2	36.00	-24.20	0.00	46.81	-	-	74.00	-27.19	107	111	H
		* 7.31325	23.21	MAv1	36.10	-25.00	0.00	34.31	54.00	-19.69	-	-	107	111	H
		* 7.518	34.90	PK2	36.00	-24.70	0.00	46.20	-	-	74.00	-27.80	252	106	V
		* 7.31288	23.22	MAv1	36.10	-25.00	0.00	34.32	54.00	-19.68	-	-	252	106	V
		9.668	32.13	PK2	37.10	-21.30	0.00	47.93	-	-	74.00	-26.07	0	100	H
		9.665	32.09	PK2	37.10	-21.30	0.00	47.89	-	-	74.00	-26.11	360	100	V
2422	ANT1	* 4.84394	46.87	PK2	34.10	-28.20	0.00	52.77	-	-	74.00	-21.23	20	100	H
		* 4.84399	43.83	MAv1	34.10	-28.20	0.00	49.73	54.00	-4.27	-	-	20	100	H
		* 4.84402	44.37	PK2	34.10	-28.20	0.00	50.27	-	-	74.00	-23.73	274	359	V
		* 4.844	40.27	MAv1	34.10	-28.20	0.00	46.17	54.00	-7.83	-	-	274	359	V
		* 7.26798	37.53	PK2	36.20	-25.40	0.00	48.33	-	-	74.00	-25.67	109	111	H
		* 7.26512	27.41	MAv1	36.20	-25.50	0.00	38.11	54.00	-15.89	-	-	109	111	H
		* 7.26495	38.97	PK2	36.20	-25.50	0.00	49.67	-	-	74.00	-24.33	264	100	V
		* 7.26499	29.62	MAv1	36.20	-25.50	0.00	40.32	54.00	-13.68	-	-	264	100	V
		9.688	32.85	PK2	37.10	-21.30	0.00	48.65	-	-	74.00	-25.35	0	100	H
		9.687	32.57	PK2	37.10	-21.30	0.00	48.37	-	-	74.00	-25.63	360	100	V
2427	ANT1	* 4.85405	47.52	PK2	34.10	-28.10	0.00	53.52	-	-	74.00	-20.48	14	111	H
		* 4.854	44.74	MAv1	34.10	-28.10	0.00	50.74	54.00	**-3.26**	-	-	14	111	H
		* 4.8541	43.58	PK2	34.10	-28.10	0.00	49.58	-	-	74.00	-24.42	288	380	V
		* 4.85401	39.57	MAv1	34.10	-28.10	0.00	45.57	54.00	-8.43	-	-	288	380	V
		* 7.27947	36.37	PK2	36.20	-25.40	0.00	47.17	-	-	74.00	-26.83	111	100	H
		* 7.28169	26.15	MAv1	36.20	-25.30	0.00	37.05	54.00	-16.95	-	-	111	100	H
		* 7.28106	37.58	PK2	36.20	-25.30	0.00	48.48	-	-	74.00	-25.52	277	100	V
		* 7.2818	27.41	MAv1	36.20	-25.30	0.00	38.31	54.00	-15.69	-	-	277	100	V
		9.711	32.70	PK2	37.10	-21.20	0.00	48.60	-	-	74.00	-25.40	0	100	H
		9.712	32.65	PK2	37.10	-21.20	0.00	48.55	-	-	74.00	-25.45	360	100	V
2432	ANT1	* 4.86408	46.75	PK2	34.10	-28.00	0.00	52.85	-	-	74.00	-21.15	14	109	H
		* 4.864	44.10	MAv1	34.10	-28.00	0.00	50.20	54.00	-3.80	-	-	14	109	H
		* 4.86398	42.54	PK2	34.10	-28.00	0.00	48.64	-	-	74.00	-25.36	259	100	V
		* 4.86402	37.76	MAv1	34.10	-28.00	0.00	43.86	54.00	-10.14	-	-	259	100	V
		* 7.29732	35.69	PK2	36.20	-25.10	0.00	46.79	-	-	74.00	-27.21	0	100	H
		* 7.29521	35.78	PK2	36.20	-25.20	0.00	46.78	-	-	74.00	-27.22	360	100	V
		9.728	32.88	PK2	37.10	-21.20	0.00	48.78	-	-	74.00	-25.22	0	100	H
		9.729	32.39	PK2	37.10	-21.30	0.00	48.19	-	-	74.00	-25.81	360	100	V
2437	ANT1	* 4.87397	46.95	PK2	34.10	-27.90	0.00	53.15	-	-	74.00	-20.85	23	101	H
		* 4.87402	43.89	MAv1	34.10	-27.90	0.00	50.09	54.00	-3.91	-	-	23	101	H
		* 4.87405	42.64	PK2	34.10	-27.90	0.00	48.84	-	-	74.00	-25.16	269	100	V
		* 4.87399	37.64	MAv1	34.10	-27.90	0.00	43.84	54.00	-10.16	-	-	269	100	V
		* 7.3111	38.01	PK2	36.20	-25.00	0.00	49.21	-	-	74.00	-24.79	333	106	H
		* 7.30998	29.37	MAv1	36.20	-25.00	0.00	40.57	54.00	-13.43	-	-	333	106	H
		* 7.31215	38.91	PK2	36.20	-25.00	0.00	50.11	-	-	74.00	-23.89	244	122	V
		* 7.31191	29.97	MAv1	36.20	-25.00	0.00	41.17	54.00	-12.83	-	-	244	122	V
		9.744	32.48	PK2	37.20	-21.40	0.00	48.28	-	-	74.00	-25.72	360	100	H
		9.729	32.60	PK2	37.10	-21.20	0.00	48.50	-	-	74.00	-25.50	360	100	V
2462	ANT1	* 4.92414	46.25	PK2	34.10	-27.40	0.00	52.95	-	-	74.00	-21.05	25	118	H
		* 4.92399	43.52	MAv1	34.10	-27.40	0.00	50.22	54.00	-3.78	-	-	25	118	H
		* 4.92385	42.90	PK2	34.10	-27.40	0.00	49.60	-	-	74.00	-24.40	270	109	V
		* 4.92395	38.82	MAv1	34.10	-27.40	0.00	45.52	54.00	-8.48	-	-	270	109	V
		* 7.38623	39.10	PK2	36.10	-24.20	0.00	51.00	-	-	74.00	-23.00	331	106	H
		* 7.38509	32.00	MAv1	36.10	-24.20	0.00	43.90	54.00	-10.10	-	-	331	106	H
		* 7.38529	39.25	PK2	36.10	-24.20	0.00	51.15	-	-	74.00	-22.85	233	104	V
		* 7.38511	32.28	MAv1	36.10	-24.20	0.00	44.18	54.00	-9.82	-	-	233	104	V
		9.852	32.59	PK2	37.30	-21.70	0.00	48.19	-	-	74.00	-25.81	360	100	H
		9.847	32.27	PK2	37.30	-21.70	0.00	47.87	-	-	74.00	-26.13	360	100	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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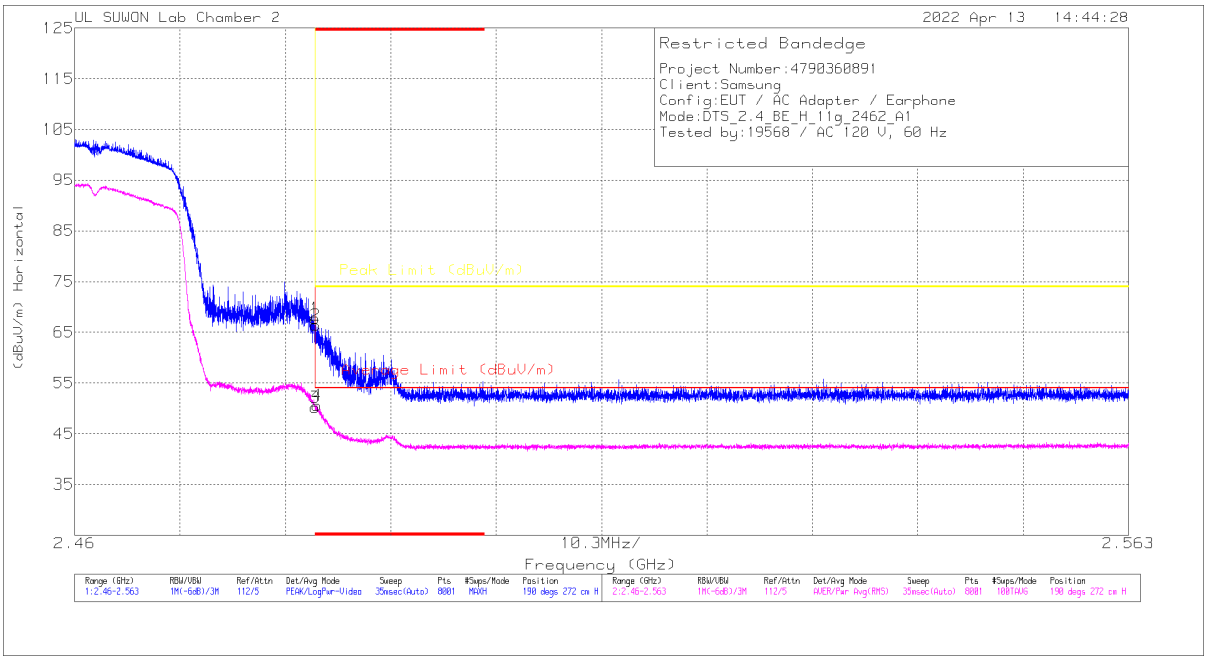
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (ANT1 WORST CASE: 11 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	56.21	Pk	32	-20.4	0	67.81	-	-	74	-6.19	190	272	H
2	* 2.48354	54.83	Pk	32	-20.4	0	66.43	-	-	74	-7.57	190	272	H
3	* 2.48351	38.58	RMS	32	-20.4	0	50.18	54	-3.82	-	-	190	272	H
4	* 2.48365	39.03	RMS	32	-20.4	0	50.63	54	-3.37	-	-	190	272	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	46.40	Pk	31.90	-20.60	0.00	57.70	-	-	74.00	-16.30	158	225	H
		* 2.38987	49.24	Pk	31.90	-20.60	0.00	60.54	-	-	74.00	-13.46	158	225	H
		* 2.39	33.97	RMS	31.90	-20.60	0.00	45.27	54.00	-8.73	-	-	158	225	H
		* 2.38994	34.00	RMS	31.90	-20.60	0.00	45.30	54.00	-8.70	-	-	158	225	H
		* 2.39	43.19	Pk	31.90	-20.60	0.00	54.49	-	-	74.00	-19.51	195	100	V
		* 2.38964	46.31	Pk	31.90	-20.60	0.00	57.61	-	-	74.00	-16.39	195	100	V
		* 2.39	32.43	RMS	31.90	-20.60	0.00	43.73	54.00	-10.27	-	-	195	100	V
		* 2.38992	32.94	RMS	31.90	-20.60	0.00	44.24	54.00	-9.76	-	-	195	100	V
2417	ANT1	* 2.39	44.42	Pk	31.90	-20.60	0.00	55.72	-	-	74.00	-18.28	162	225	H
		* 2.38979	47.55	Pk	31.90	-20.60	0.00	58.85	-	-	74.00	-15.15	162	225	H
		* 2.39	32.74	RMS	31.90	-20.60	0.00	44.04	54.00	-9.96	-	-	162	225	H
		* 2.38981	33.75	RMS	31.90	-20.60	0.00	45.05	54.00	-8.95	-	-	162	225	H
		* 2.39	41.97	Pk	31.90	-20.60	0.00	53.27	-	-	74.00	-20.73	195	100	V
		* 2.38926	43.95	Pk	31.90	-20.60	0.00	55.25	-	-	74.00	-18.75	195	100	V
		* 2.39	31.60	RMS	31.90	-20.60	0.00	42.90	54.00	-11.10	-	-	195	100	V
		* 2.3895	32.10	RMS	31.90	-20.60	0.00	43.40	54.00	-10.60	-	-	195	100	V
2457	ANT1	* 2.48351	51.34	Pk	32.00	-20.40	0.00	62.94	-	-	74.00	-11.06	169	270	H
		* 2.48357	53.11	Pk	32.00	-20.40	0.00	64.71	-	-	74.00	-9.29	169	270	H
		* 2.48351	35.33	RMS	32.00	-20.40	0.00	46.93	54.00	-7.07	-	-	169	270	H
		* 2.48355	35.82	RMS	32.00	-20.40	0.00	47.42	54.00	-6.58	-	-	169	270	H
		* 2.48351	49.77	Pk	32.00	-20.40	0.00	61.37	-	-	74.00	-12.63	198	108	V
		* 2.48397	53.78	Pk	32.00	-20.40	0.00	65.38	-	-	74.00	-8.62	198	108	V
		* 2.48351	34.46	RMS	32.00	-20.40	0.00	46.06	54.00	-7.94	-	-	198	108	V
		* 2.48355	34.65	RMS	32.00	-20.40	0.00	46.25	54.00	-7.75	-	-	198	108	V
2462	ANT1	* 2.48351	56.21	Pk	32.00	-20.40	0.00	67.81	-	-	74.00	**-6.19**	190	272	H
		* 2.48354	54.83	Pk	32.00	-20.40	0.00	66.43	-	-	74.00	-7.57	190	272	H
		* 2.48351	38.58	RMS	32.00	-20.40	0.00	50.18	54.00	-3.82	-	-	190	272	H
		* 2.48365	39.03	RMS	32.00	-20.40	0.00	50.63	54.00	**-3.37**	-	-	190	272	H
		* 2.48351	49.95	Pk	32.00	-20.40	0.00	61.55	-	-	74.00	-12.45	195	107	V
		* 2.48364	52.05	Pk	32.00	-20.40	0.00	63.65	-	-	74.00	-10.35	195	107	V
		* 2.48351	36.43	RMS	32.00	-20.40	0.00	48.03	54.00	-5.97	-	-	195	107	V
		* 2.48355	36.15	RMS	32.00	-20.40	0.00	47.75	54.00	-6.25	-	-	195	107	V
2467	ANT1	* 2.48351	41.60	Pk	32.00	-20.40	0.00	53.20	-	-	74.00	-20.80	259	100	H
		* 2.49476	44.04	Pk	32.10	-20.40	0.00	55.74	-	-	74.00	-18.26	259	100	H
		* 2.48351	31.93	RMS	32.00	-20.40	0.00	43.53	54.00	-10.47	-	-	259	100	H
		* 2.48368	32.00	RMS	32.00	-20.40	0.00	43.60	54.00	-10.40	-	-	259	100	H
		* 2.48351	40.87	Pk	32.00	-20.40	0.00	52.47	-	-	74.00	-21.53	197	106	V
		2.558	43.78	Pk	32.20	-20.30	0.00	55.68	-	-	74.00	-18.32	197	106	V
		* 2.48351	31.44	RMS	32.00	-20.40	0.00	43.04	54.00	-10.96	-	-	197	106	V
		* 2.48384	31.68	RMS	32.00	-20.40	0.00	43.28	54.00	-10.72	-	-	197	106	V
2472	ANT1	* 2.48351	40.97	Pk	32.00	-20.40	0.00	52.57	-	-	74.00	-21.43	163	139	H
		* 2.4843	44.98	Pk	32.00	-20.40	0.00	56.58	-	-	74.00	-17.42	163	139	H
		* 2.48351	31.40	RMS	32.00	-20.40	0.00	43.00	54.00	-11.00	-	-	163	139	H
		* 2.4841	33.04	RMS	32.00	-20.40	0.00	44.64	54.00	-9.36	-	-	163	139	H
		* 2.48351	43.21	Pk	32.00	-20.40	0.00	54.81	-	-	74.00	-19.19	195	101	V
		2.540	43.85	Pk	32.10	-20.30	0.00	55.65	-	-	74.00	-18.35	195	101	V
		* 2.48351	31.26	RMS	32.00	-20.40	0.00	42.86	54.00	-11.14	-	-	195	101	V
		* 2.48417	32.16	RMS	32.00	-20.40	0.00	43.76	54.00	-10.24	-	-	195	101	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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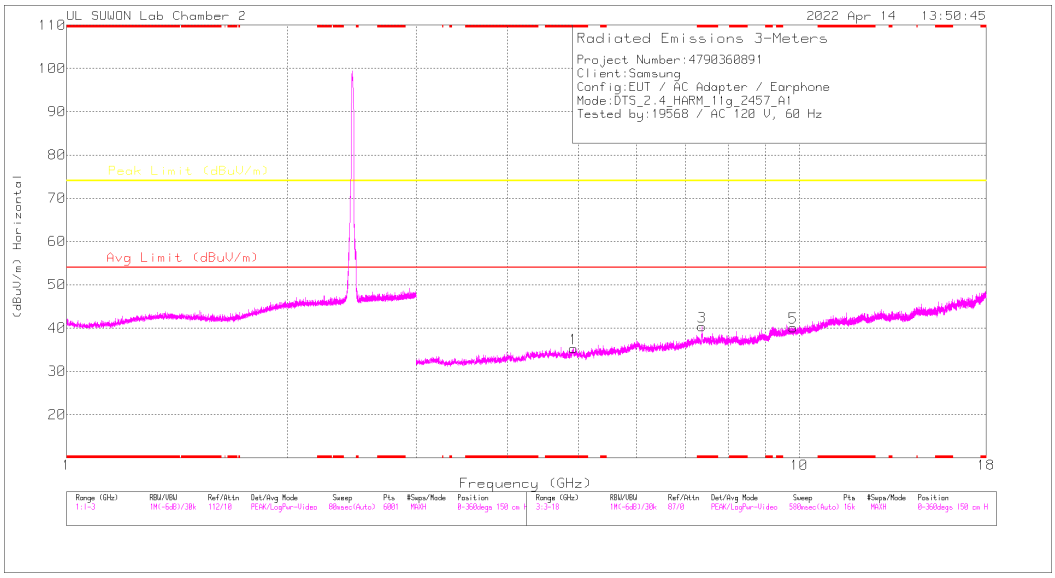
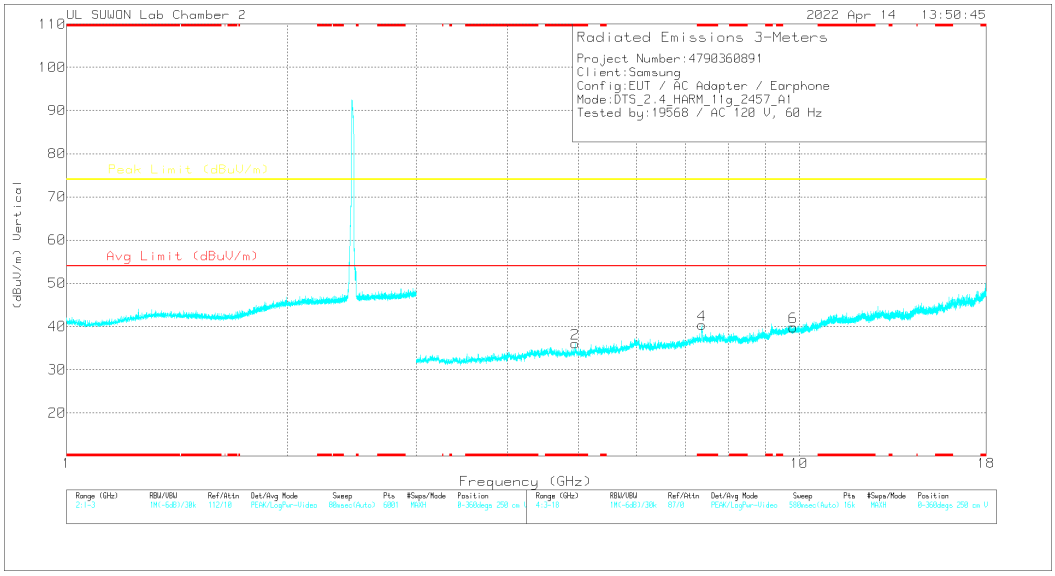
HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 10 CHANNEL) RESULTS



HORIZONTAL



VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016872 4	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.91269	38.01	PK2	34.1	-27.5	0	44.61	-	-	74	-29.39	24	118	H
* 4.91779	25.97	MAv1	34.1	-27.4	0	32.67	54	-21.33	-	-	24	118	H
* 4.94179	36.77	PK2	34.1	-27.2	0	43.67	-	-	74	-30.33	314	220	V
* 4.94923	24.39	MAv1	34.1	-27.2	0	31.29	54	-22.71	-	-	314	220	V
* 7.36802	41.04	PK2	36.1	-24.3	0	52.84	-	-	74	-21.16	296	106	H
* 7.36858	26.2	MAv1	36.1	-24.3	0	38	54	-16	-	-	296	106	H
* 7.36801	41.92	PK2	36.1	-24.3	0	53.72	-	-	74	-20.28	232	104	V
* 7.36861	27.08	MAv1	36.1	-24.3	0	38.88	54	-15.12	-	-	232	104	V
9.80805	32.57	PK2	37.2	-21.8	0	47.97	-	-	74	-26.03	360	100	H
9.8087	32.61	PK2	37.2	-21.8	0	48.01	-	-	74	-25.99	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2417	ANT1	* 4.83279	44.98	PK2	34.10	-28.10	0.00	50.98	-	-	74.00	-23.02	27	100	H
		* 4.83551	32.32	MAv1	34.10	-28.10	0.00	38.32	54.00	-15.68	-	-	27	100	H
		* 4.8346	40.28	PK2	34.10	-28.10	0.00	46.28	-	-	74.00	-27.72	305	385	V
		* 4.83415	28.49	MAv1	34.10	-28.10	0.00	34.49	54.00	-19.51	-	-	305	385	V
		* 7.52925	35.56	PK2	36.00	-24.80	0.00	46.76	-	-	74.00	-27.24	110	109	H
		* 7.31363	23.19	MAv1	36.10	-25.00	0.00	34.29	54.00	-19.71	-	-	110	109	H
		* 7.46063	35.15	PK2	36.00	-24.20	0.00	46.95	-	-	74.00	-27.05	263	106	V
		* 7.314	23.19	MAv1	36.10	-25.00	0.00	34.29	54.00	-19.71	-	-	263	106	V
		9.670	32.41	PK2	37.10	-21.30	0.00	48.21	-	-	74.00	-25.79	0	100	H
		9.676	32.99	PK2	37.10	-21.30	0.00	48.79	-	-	74.00	-25.21	360	100	V
2437	ANT1	* 4.87983	44.54	PK2	34.10	-27.80	0.00	50.84	-	-	74.00	-23.16	31	101	H
		* 4.87453	29.47	MAv1	34.10	-27.90	0.00	35.67	54.00	-18.33	-	-	31	101	H
		* 4.86893	38.32	PK2	34.10	-28.00	0.00	44.42	-	-	74.00	-29.58	282	108	V
		* 4.87518	26.23	MAv1	34.10	-27.90	0.00	32.43	54.00	-21.57	-	-	282	108	V
		* 7.3158	42.10	PK2	36.10	-24.90	0.00	53.30	-	-	74.00	-20.70	329	101	H
		* 7.3102	25.71	MAv1	36.20	-25.00	0.00	36.91	54.00	-17.09	-	-	329	101	H
		* 7.31612	45.49	PK2	36.10	-24.90	0.00	56.69	-	-	74.00	**-17.31**	251	101	V
		* 7.31517	27.22	MAv1	36.10	-24.90	0.00	38.42	54.00	-15.58	-	-	251	101	V
		9.753	32.96	PK2	37.20	-21.40	0.00	48.76	-	-	74.00	-25.24	360	100	H
		9.745	32.40	PK2	37.20	-21.40	0.00	48.20	-	-	74.00	-25.80	360	100	V
2457	ANT1	* 4.91269	38.01	PK2	34.10	-27.50	0.00	44.61	-	-	74.00	-29.39	24	118	H
		* 4.91779	25.97	MAv1	34.10	-27.40	0.00	32.67	54.00	-21.33	-	-	24	118	H
		* 4.94179	36.77	PK2	34.10	-27.20	0.00	43.67	-	-	74.00	-30.33	314	220	V
		* 4.94923	24.39	MAv1	34.10	-27.20	0.00	31.29	54.00	-22.71	-	-	314	220	V
		* 7.36802	41.04	PK2	36.10	-24.30	0.00	52.84	-	-	74.00	-21.16	296	106	H
		* 7.36858	26.20	MAv1	36.10	-24.30	0.00	38.00	54.00	-16.00	-	-	296	106	H
		* 7.36801	41.92	PK2	36.10	-24.30	0.00	53.72	-	-	74.00	-20.28	232	104	V
		* 7.36861	27.08	MAv1	36.10	-24.30	0.00	38.88	54.00	**-15.12**	-	-	232	104	V
		9.808	32.57	PK2	37.20	-21.80	0.00	47.97	-	-	74.00	-26.03	360	100	H
		9.809	32.61	PK2	37.20	-21.80	0.00	48.01	-	-	74.00	-25.99	360	100	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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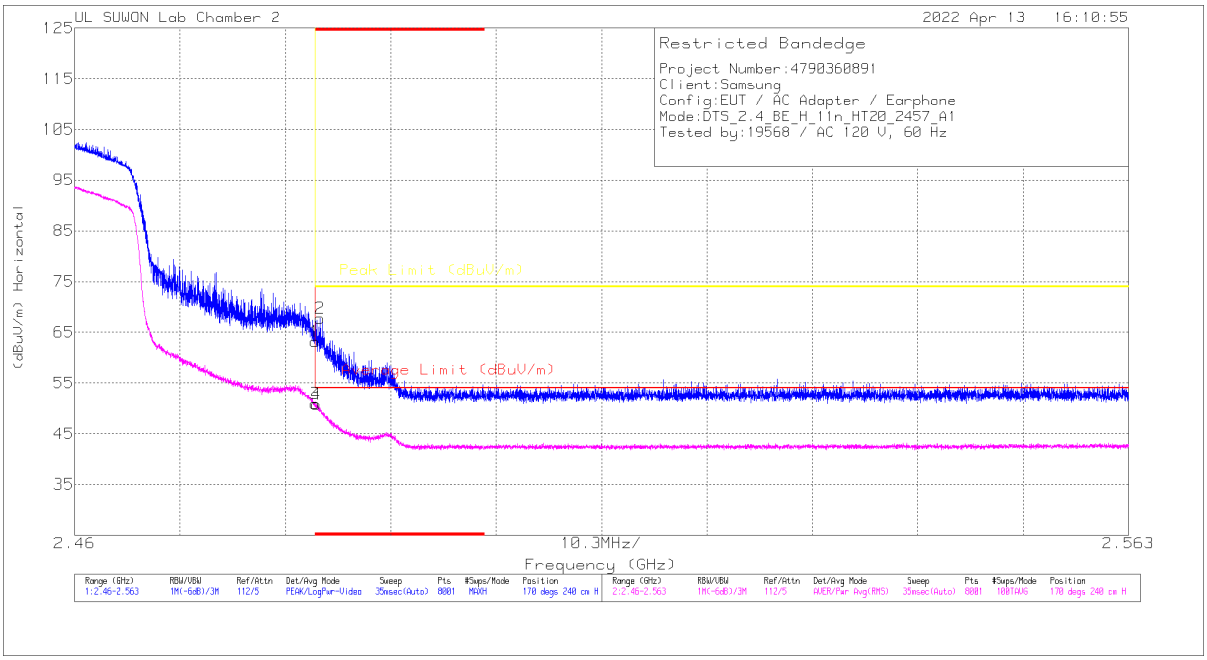
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

BANDEDGE (ANT1 WORST CASE: 10 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	51.54	Pk	32	-20.4	0	63.14	-	-	74	-10.86	170	240	H
2	* 2.48401	56.19	Pk	32	-20.4	0	67.79	-	-	74	-6.21	170	240	H
3	* 2.48351	39.31	RMS	32	-20.4	0	50.91	54	-3.09	-	-	170	240	H
4	* 2.48364	39.21	RMS	32	-20.4	0	50.81	54	-3.19	-	-	170	240	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	45.45	Pk	31.90	-20.60	0.00	56.75	-	-	74.00	-17.25	157	225	H
		* 2.38998	49.99	Pk	31.90	-20.60	0.00	61.29	-	-	74.00	-12.71	157	225	H
		* 2.39	34.12	RMS	31.90	-20.60	0.00	45.42	54.00	-8.58	-	-	157	225	H
		* 2.3898	34.14	RMS	31.90	-20.60	0.00	45.44	54.00	-8.56	-	-	157	225	H
		* 2.39	44.48	Pk	31.90	-20.60	0.00	55.78	-	-	74.00	-18.22	195	100	V
		* 2.38971	46.47	Pk	31.90	-20.60	0.00	57.77	-	-	74.00	-16.23	195	100	V
		* 2.39	32.33	RMS	31.90	-20.60	0.00	43.63	54.00	-10.37	-	-	195	100	V
		* 2.38996	32.90	RMS	31.90	-20.60	0.00	44.20	54.00	-9.80	-	-	195	100	V
2417	ANT1	* 2.39	42.65	Pk	31.90	-20.60	0.00	53.95	-	-	74.00	-20.05	163	223	H
		* 2.38993	49.91	Pk	31.90	-20.60	0.00	61.21	-	-	74.00	-12.79	163	223	H
		* 2.39	32.71	RMS	31.90	-20.60	0.00	44.01	54.00	-9.99	-	-	163	223	H
		* 2.38985	32.99	RMS	31.90	-20.60	0.00	44.29	54.00	-9.71	-	-	163	223	H
		* 2.39	42.53	Pk	31.90	-20.60	0.00	53.83	-	-	74.00	-20.17	196	100	V
		* 2.3896	46.81	Pk	31.90	-20.60	0.00	58.11	-	-	74.00	-15.89	196	100	V
		* 2.39	31.97	RMS	31.90	-20.60	0.00	43.27	54.00	-10.73	-	-	196	100	V
		* 2.38937	31.86	RMS	31.90	-20.60	0.00	43.16	54.00	-10.84	-	-	196	100	V
2457	ANT1	* 2.48351	51.54	Pk	32.00	-20.40	0.00	63.14	-	-	74.00	-10.86	170	240	H
		* 2.48401	56.19	Pk	32.00	-20.40	0.00	67.79	-	-	74.00	**-6.21**	170	240	H
		* 2.48351	39.31	RMS	32.00	-20.40	0.00	50.91	54.00	**-3.09**	-	-	170	240	H
		* 2.48364	39.21	RMS	32.00	-20.40	0.00	50.81	54.00	-3.19	-	-	170	240	H
		* 2.48351	51.66	Pk	32.00	-20.40	0.00	63.26	-	-	74.00	-10.74	197	106	V
		* 2.48365	53.62	Pk	32.00	-20.40	0.00	65.22	-	-	74.00	-8.78	197	106	V
		* 2.48351	37.08	RMS	32.00	-20.40	0.00	48.68	54.00	-5.32	-	-	197	106	V
		* 2.48352	37.70	RMS	32.00	-20.40	0.00	49.30	54.00	-4.70	-	-	197	106	V
2462	ANT1	* 2.48351	52.68	Pk	32.00	-20.40	0.00	64.28	-	-	74.00	-9.72	260	100	H
		* 2.48355	55.99	Pk	32.00	-20.40	0.00	67.59	-	-	74.00	-6.41	260	100	H
		* 2.48351	38.30	RMS	32.00	-20.40	0.00	49.90	54.00	-4.10	-	-	260	100	H
		* 2.48355	38.91	RMS	32.00	-20.40	0.00	50.51	54.00	-3.49	-	-	260	100	H
		* 2.48351	51.87	Pk	32.00	-20.40	0.00	63.47	-	-	74.00	-10.53	197	106	V
		* 2.48381	55.60	Pk	32.00	-20.40	0.00	67.20	-	-	74.00	-6.80	197	106	V
		* 2.48351	37.93	RMS	32.00	-20.40	0.00	49.53	54.00	-4.47	-	-	197	106	V
		* 2.4837	38.00	RMS	32.00	-20.40	0.00	49.60	54.00	-4.40	-	-	197	106	V
2467	ANT1	* 2.48351	42.29	Pk	32.00	-20.40	0.00	53.89	-	-	74.00	-20.11	258	100	H
		2.528	44.14	Pk	32.10	-20.40	0.00	55.84	-	-	74.00	-18.16	258	100	H
		* 2.48351	31.68	RMS	32.00	-20.40	0.00	43.28	54.00	-10.72	-	-	258	100	H
		* 2.48365	31.93	RMS	32.00	-20.40	0.00	43.53	54.00	-10.47	-	-	258	100	H
		* 2.48351	41.61	Pk	32.00	-20.40	0.00	53.21	-	-	74.00	-20.79	197	106	V
		2.561	43.66	Pk	32.20	-20.30	0.00	55.56	-	-	74.00	-18.44	197	106	V
		* 2.48351	31.69	RMS	32.00	-20.40	0.00	43.29	54.00	-10.71	-	-	197	106	V
		* 2.48365	31.76	RMS	32.00	-20.40	0.00	43.36	54.00	-10.64	-	-	197	106	V
2472	ANT1	* 2.48351	44.41	Pk	32.00	-20.40	0.00	56.01	-	-	74.00	-17.99	295	106	H
		* 2.48365	44.75	Pk	32.00	-20.40	0.00	56.35	-	-	74.00	-17.65	295	106	H
		* 2.48351	34.46	RMS	32.00	-20.40	0.00	46.06	54.00	-7.94	-	-	295	106	H
		* 2.48356	34.12	RMS	32.00	-20.40	0.00	45.72	54.00	-8.28	-	-	295	106	H
		* 2.48351	43.23	Pk	32.00	-20.40	0.00	54.83	-	-	74.00	-19.17	197	106	V
		2.541	44.22	Pk	32.10	-20.30	0.00	56.02	-	-	74.00	-17.98	197	106	V
		* 2.48351	32.36	RMS	32.00	-20.40	0.00	43.96	54.00	-10.04	-	-	197	106	V
		* 2.48357	32.89	RMS	32.00	-20.40	0.00	44.49	54.00	-9.51	-	-	197	106	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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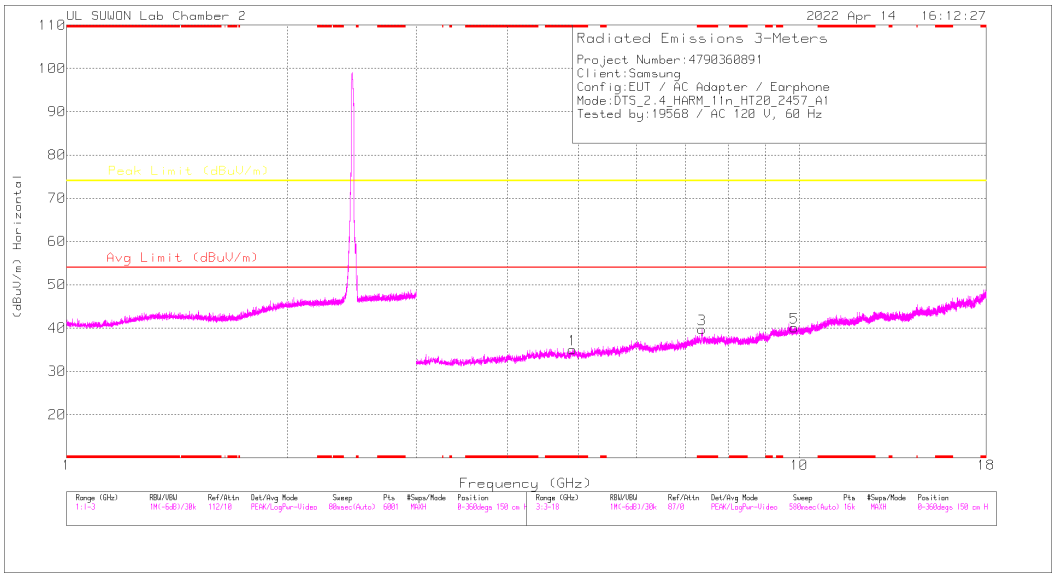
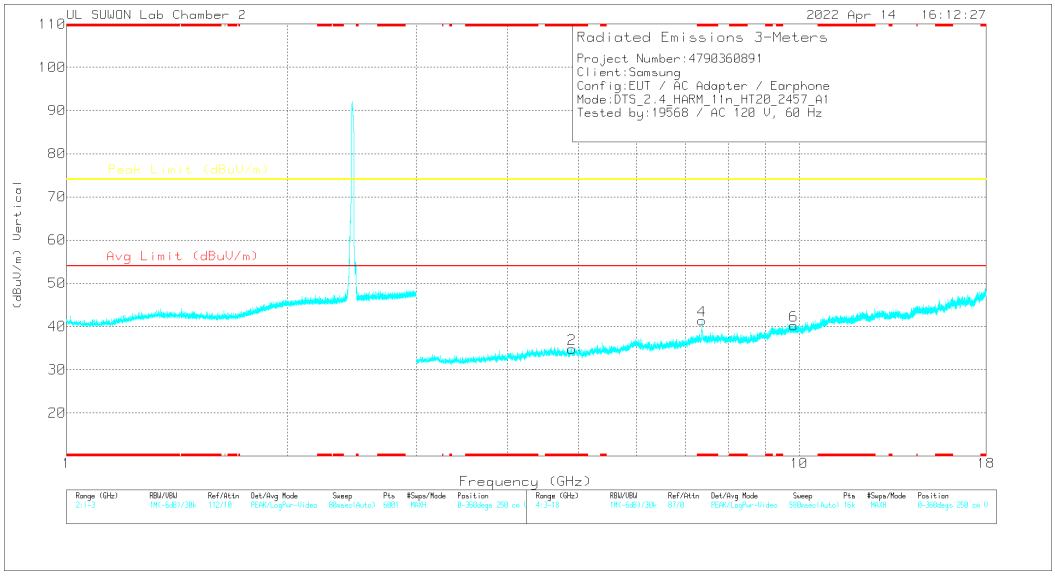
HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 10 CHANNEL) RESULTS



HORIZONTAL



VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.90511	38.36	PK2	34.1	-27.6	0	44.86	-	-	74	-29.14	360	100	H
* 4.89104	36.82	PK2	34.1	-27.7	0	43.22	-	-	74	-30.78	360	100	V
* 7.36949	41.62	PK2	36.1	-24.3	0	53.42	-	-	74	-20.58	336	103	H
* 7.36884	26.6	MAv1	36.1	-24.3	0	38.4	54	-15.6	-	-	336	103	H
* 7.36384	42.34	PK2	36.1	-24.4	0	54.04	-	-	74	-19.96	233	104	V
* 7.36884	26.89	MAv1	36.1	-24.3	0	38.69	54	-15.31	-	-	233	104	V
9.85078	32.65	PK2	37.3	-21.7	0	48.25	-	-	74	-25.75	360	100	H
9.83898	33.08	PK2	37.3	-21.7	0	48.68	-	-	74	-25.32	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2417	ANT1	* 4.83832	45.01	PK2	34.10	-28.10	0.00	51.01	-	-	74.00	-22.99	26	100	H
		* 4.83517	32.18	MAv1	34.10	-28.10	0.00	38.18	54.00	-15.82	-	-	26	100	H
		* 4.83316	39.52	PK2	34.10	-28.10	0.00	45.52	-	-	74.00	-28.48	258	100	V
		* 4.83416	27.53	MAv1	34.10	-28.10	0.00	33.53	54.00	-20.47	-	-	258	100	V
		* 7.52189	34.48	PK2	36.00	-24.80	0.00	45.68	-	-	74.00	-28.32	110	100	H
		* 7.52428	23.58	MAv1	36.00	-24.70	0.00	34.88	54.00	-19.12	-	-	110	100	H
		* 7.506	34.94	PK2	36.00	-24.60	0.00	46.34	-	-	74.00	-27.66	261	103	V
		* 7.51763	23.20	MAv1	36.00	-24.70	0.00	34.50	54.00	-19.50	-	-	261	103	V
		9.688	32.34	PK2	37.10	-21.30	0.00	48.14	-	-	74.00	-25.86	0	100	H
		9.688	32.65	PK2	37.10	-21.30	0.00	48.45	-	-	74.00	-25.55	360	100	V
2437	ANT1	* 4.87856	43.40	PK2	34.10	-27.80	0.00	49.70	-	-	74.00	-24.30	10	111	H
		* 4.87531	29.06	MAv1	34.10	-27.90	0.00	35.26	54.00	-18.74	-	-	10	111	H
		* 4.88088	37.79	PK2	34.10	-27.80	0.00	44.09	-	-	74.00	-29.91	275	125	V
		* 4.87815	25.39	MAv1	34.10	-27.90	0.00	31.59	54.00	-22.41	-	-	275	125	V
		* 7.31608	42.08	PK2	36.10	-24.90	0.00	53.28	-	-	74.00	-20.72	334	102	H
		* 7.31218	25.60	MAv1	36.20	-25.00	0.00	36.80	54.00	-17.20	-	-	334	102	H
		* 7.30923	43.40	PK2	36.20	-25.00	0.00	54.60	-	-	74.00	**-19.40**	248	102	V
		* 7.31543	26.46	MAv1	36.10	-24.90	0.00	37.66	54.00	-16.34	-	-	248	102	V
		9.748	32.73	PK2	37.20	-21.40	0.00	48.53	-	-	74.00	-25.47	360	100	H
		9.739	32.27	PK2	37.10	-21.30	0.00	48.07	-	-	74.00	-25.93	360	100	V
2457	ANT1	* 4.90511	38.36	PK2	34.10	-27.60	0.00	44.86	-	-	74.00	-29.14	360	100	H
		* 4.89104	36.82	PK2	34.10	-27.70	0.00	43.22	-	-	74.00	-30.78	360	100	V
		* 7.36949	41.62	PK2	36.10	-24.30	0.00	53.42	-	-	74.00	-20.58	336	103	H
		* 7.36884	26.60	MAv1	36.10	-24.30	0.00	38.40	54.00	-15.60	-	-	336	103	H
		* 7.36384	42.34	PK2	36.10	-24.40	0.00	54.04	-	-	74.00	-19.96	233	104	V
		* 7.36884	26.89	MAv1	36.10	-24.30	0.00	38.69	54.00	**-15.31**	-	-	233	104	V
		9.851	32.65	PK2	37.30	-21.70	0.00	48.25	-	-	74.00	-25.75	360	100	H
		9.839	33.08	PK2	37.30	-21.70	0.00	48.68	-	-	74.00	-25.32	360	100	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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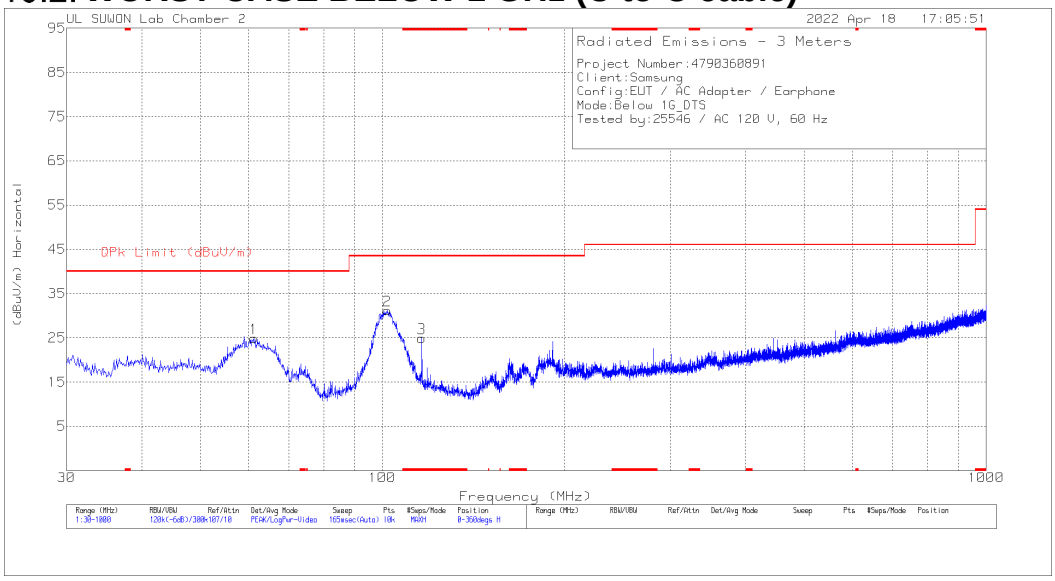
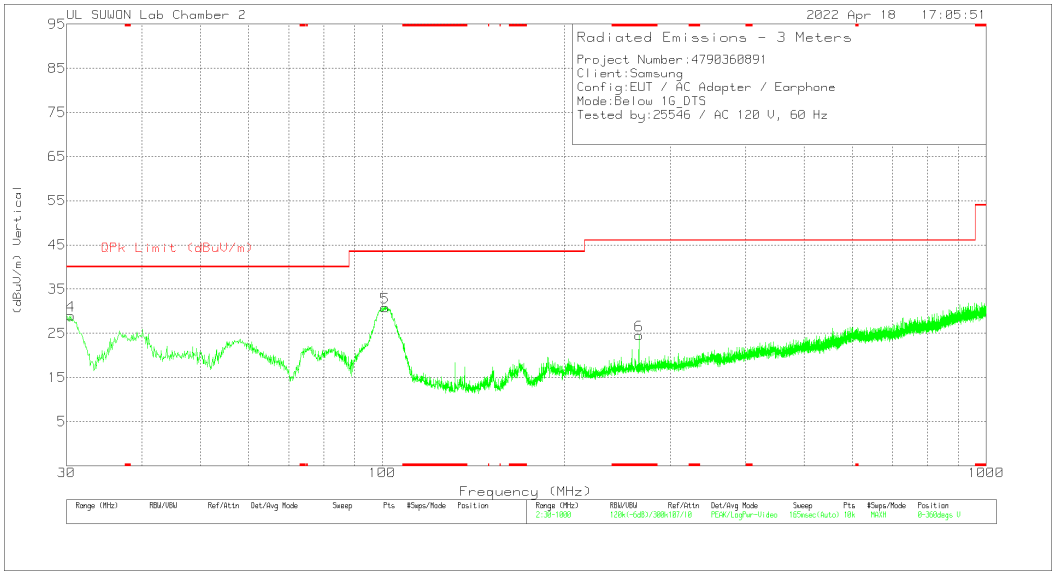
10.2. WORST CASE BELOW 1 GHz (C to C cable)



HORIZONTAL



VERTICAL

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	61.234	38.29	Pk	18.2	-31.6	0	24.89	40	-15.11	0-360	300	H
2	101.877	45.03	Pk	17.5	-31.3	0	31.23	43.52	-12.29	0-360	200	H
3	* 116.233	40.06	Pk	16	-31.1	0	24.96	43.52	-18.56	0-360	200	H
4	30.485	45.54	Pk	15.6	-32.1	0	29.04	40	-10.96	0-360	100	V
5	101.004	44.59	Pk	17.5	-31.3	0	30.79	43.52	-12.73	0-360	100	V
6	* 266.098	36.55	Pk	18.5	-30.5	0	24.55	46.02	-21.47	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

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11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

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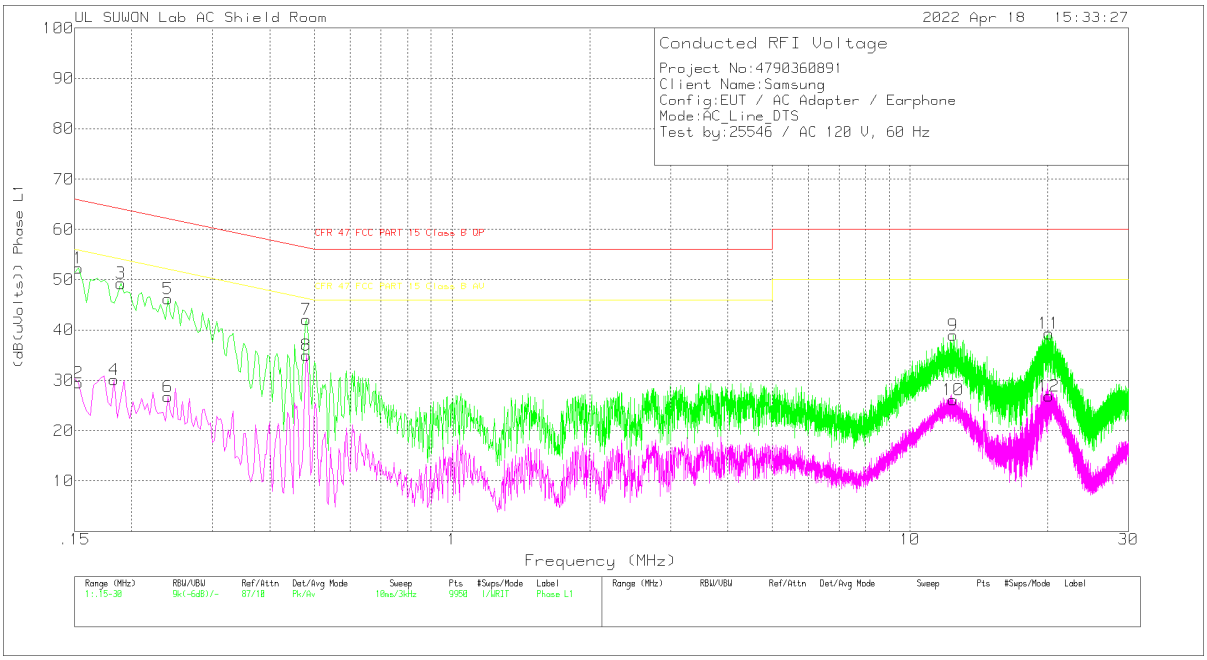
11.1. AC Power Line (C to C Cable)

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.153	42.37	Pk	9.8	.1	52.27	65.84	-13.57	-	-
2	.153	19.63	Av	9.8	.1	29.53	-	-	55.84	-26.31
3	.189	39.15	Pk	9.9	.2	49.25	64.08	-14.83	-	-
4	.183	20.04	Av	9.9	.2	30.14	-	-	54.35	-24.21
5	.24	36.32	Pk	9.7	.2	46.22	62.1	-15.88	-	-
6	.24	16.86	Av	9.7	.2	26.76	-	-	52.1	-25.34
7	.48	32	Pk	9.9	.2	42.1	56.34	-14.24	-	-
8	.48	24.88	Av	9.9	.2	34.98	-	-	46.34	-11.36
9	12.42	28.72	Pk	9.9	.3	38.92	60	-21.08	-	-
10	12.429	15.93	Av	9.9	.3	26.13	-	-	50	-23.87
11	20.139	28.68	Pk	10.2	.4	39.28	60	-20.72	-	-
12	20.127	16.22	Av	10.2	.4	26.82	-	-	50	-23.18

Pk - Peak detector
Av - Average detection

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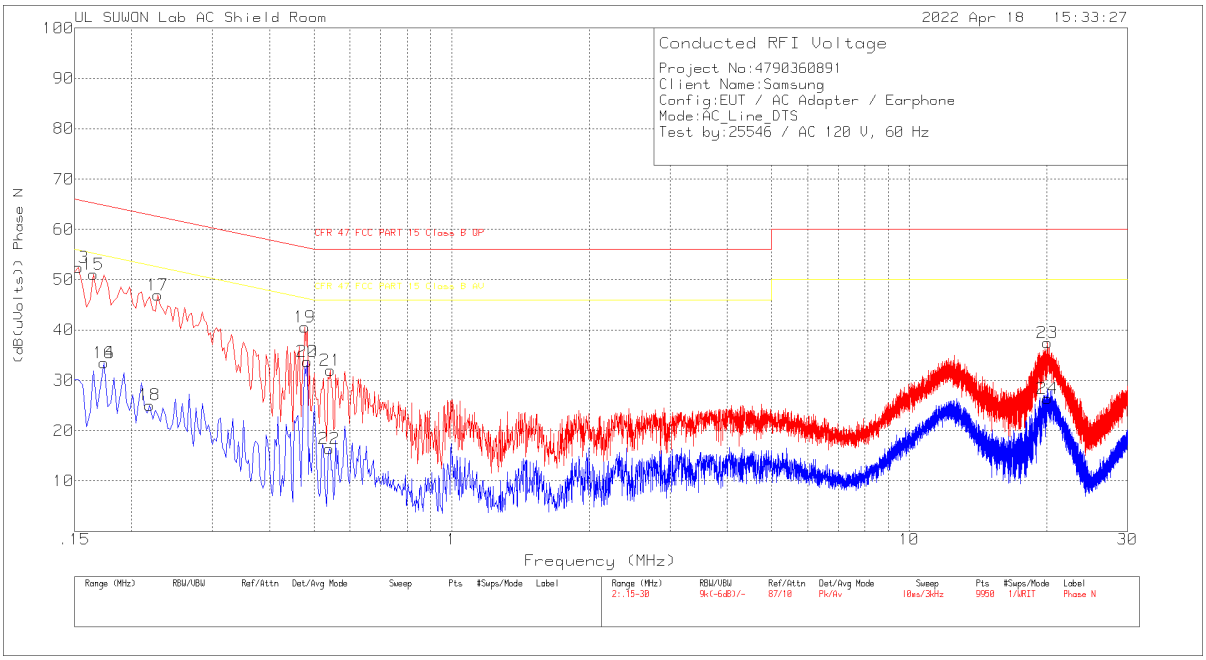
LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.153	42.48	Pk	9.8	.1	52.38	65.84	-13.46	-	-
14	.174	23.28	Av	10	.2	33.48	-	-	54.77	-21.29
15	.165	41.06	Pk	9.9	.1	51.06	65.21	-14.15	-	-
16	.174	23.28	Av	10	.2	33.48	-	-	54.77	-21.29
17	.228	37.08	Pk	9.7	.2	46.98	62.52	-15.54	-	-
18	.219	15.07	Av	9.8	.2	25.07	-	-	52.86	-27.79
19	.477	30.45	Pk	9.9	.2	40.55	56.39	-15.84	-	-
20	.483	23.67	Av	9.9	.2	33.77	-	-	46.29	-12.52
21	.543	21.9	Pk	9.9	.2	32	56	-24	-	-
22	.54	6.35	Av	9.9	.2	16.45	-	-	46	-29.55
23	20.046	26.73	Pk	10.3	.4	37.43	60	-22.57	-	-
24	20.058	15.72	Av	10.3	.4	26.42	-	-	50	-23.58

Pk - Peak detector
Av - Average detection

END OF TEST REPORT

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