

EVALUATION REPORT

Applicant Name:

SAMSUNG Electronics Co., Ltd.

Date of Issue:

August 27, 2020

Location:

HCT CO., LTD.,

Address:129, Samsung-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Rep. of Korea74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA**FCC ID:**

A3LSMG781U

APPLICANT:

SAMSUNG Electronics Co., Ltd.

Equipment Class(es) : PCE, DSS, DTS, UNII,DCD ,DXX

Rule Part(s) : 15, 22, 24, 27, 2

Application's Statement : The applicant takes full responsibility that the test data referenced below represents compliance for this FCC ID.

Differences**Brief Description :**Hardware and software of this device are identical to the implementation in A3LSMG781V
The operational description includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.

Test Reference : KDB 484596 D01 Reference Test Data v01

The detail test data can be found in this documents, Appendix A.

Category	Spot Check	Verdict
Licensed EMC	ERP / EIRP	Share
	RSE	Share
Unlicensed EMC	Band Edge	Share
	Spurious Emissions	Share

Reference Detail Section

Reference FCC ID	Equipment Class	Report Title	Section
A3LSMG781V	PCE	2G, 3G Report	All sections
		LTE B7 Report	All sections
		LTE B12 Report	All sections
		LTE B13 Report	All sections
		LTE B14 Report	All sections
		LTE B26(5) Report (Part 22)	All sections
		LTE B26 Report (Part 90)	All sections
		LTE B25(2) Report	All sections
		LTE B30 Report	All sections
		LTE B40 Report	All sections
		LTE B71 Report	All sections
		LTE B66(4) Report	All sections
		LTE B41(38) Report	All sections
		5G NR n5 Report	All sections
		5G NR 71 Report	All sections
		5G NR 41 Report	All sections
		5G NR 66 Report	All sections
		5G NR 25(2) Report	All sections
	DSS	Bluetooth Report	All sections
	DTS	DTS Report , DTS ax Report	All sections
		BT LE Report	All sections
	NII	UNII Test Report , UNII ax Report	All sections
	DXX	NFC Report	All sections
	DCD	WPT Report	All sections



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REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	August 27, 2020	Initial Release

Appendix A. The Spot check test data

1. Summary of the spot check for Licensed EMC

1.1 EFFECTIVE RADIATED POWER

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
GSM850	251	848.8	-27.49	36.75	-10.14	1.42	H	< 7.00	0.331	25.19
WCDMA850	4132	826.4	-34.29	29.28	-10.24	1.40	H		0.058	17.64
CDMA BC0	1013	824.7	-32.54	30.96	-10.24	1.40	V		0.085	19.32
LTE B26(5)	27033	848.3	-33.67	30.47	-10.14	1.42	V		0.078	18.91
LTE B26(90)	26790	824.0	-32.85	30.55	-10.25	1.39	H		0.078	18.91
5G NR n5	166800	834.0	-32.78	31.13	-10.19	1.40	H		0.090	19.54

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
CDMA BC10	580	820.5	-32.25	30.92	-10.27	1.39	V	< 1.00	0.084	19.26

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	ERP	
	channel	Freq.(MHz)						W	W	dBm
LTE B12	23025	700.5	-30.04	30.87	-9.92	1.28	H	< 3.00	0.093	19.67
LTE B13	23230	782.0	-29.56	32.64	-10.09	1.36	V		0.131	21.19
LTE B14	23330	793.0	-30.45	32.27	-10.12	1.36	H		0.120	20.79
LTE B71	133297	680.5	-29.94	29.46	-9.78	1.26	V		0.070	18.42
5G NR n71	136100	680.5	-29.51	29.89	-9.78	1.26	H		0.077	18.85

Mode	Frequency (MHz)		Mode	SM-G781V (dBm)	SM-G781U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM850	848.8	251	VOICE	25.52	25.19	0.33
WCDMA850	826.4	4132	RMC	17.30	17.64	-0.34
CDMA BC0	824.7	1013	1xRTT	18.23	19.32	-1.09
CDMA BC10	820.5	580	1xRTT	18.12	19.26	-1.14
LTE B12 (B.W 3MHz)	700.5	23025	QPSK	20.47	19.67	0.80
LTE B13 (B.W 10MHz)	782.0	23230	QPSK	21.50	21.19	0.31
LTE B14 (B.W 10MHz)	793.0	23330	QPSK	20.76	20.79	-0.03
LTE B26(5) (B.W 1.4MHz)	848.3	27033	QPSK	17.95	18.91	-0.96
LTE B26(part90) (B.W 10MHz)	824.0	26790	QPSK	17.78	18.91	-1.13
LTE B71 (B.W 20MHz)	680.5	133297	QPSK	19.42	18.42	1.00
5G NR n5 (B.W 20MHz)	834.0	166800	Pi2/BPSK	18.56	19.54	-0.98
5G NR n71 (B.W 20MHz)	680.5	136100	Pi2/BPSK	19.71	18.85	0.86

1.2 EQUIVALENT ISOTROPIC RADIATED POWER

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	EIRP	
	channel	Freq.(MHz)						W	W	dBm
GSM1900	810	1909.8	-15.68	18.86	10.23	2.15	V	< 2.00	0.495	26.94
WCDMA1900	9538	1907.6	-21.23	13.31	10.23	2.15	V		0.138	21.39
CDMA BC1	1175	1908.8	-20.93	13.61	10.23	2.15	H		0.148	21.69
LTE B25(2)	26675	1913.5	-20.97	13.57	10.23	2.15	H		0.146	21.65
LTE B40	38775	2312.5	-39.84	-1.46	9.68	2.38	H		0.004	5.84
LTE B41(38)	40620	2593.0	-22.79	14.54	10.98	2.53	H		0.199	22.99
LTE B7	21350	2560.0	-24.90	12.31	10.93	2.52	H		0.118	20.72
5G NR n25(2)	382500	1912.5	-20.13	14.41	10.23	2.15	V		0.178	22.49
5G NR n41	518598	2592.99	-24.48	13.00	10.98	2.54	H		0.139	21.44

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	EIRP	
	channel	Freq.(MHz)						W	W	dBm
WCDMA1700	1312	1712.4	-20.60	13.04	9.85	2.05	V	< 1.00	0.121	20.84
LTE B66(4)	131987	1711.5	-18.72	14.92	9.85	2.05	V		0.187	22.72
5G NR n66	354000	1770.0	-19.31	14.40	10.05	2.07	V		0.173	22.38

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	Limit	EIRP	
	channel	Freq.(MHz)						W	W	dBm
LTE B30	27735	2312.5	-23.24	15.14	9.68	2.38	H	< 0.25	0.176	22.44

Modulation	Frequency		Mode	SM-G781V (dBm)	SM-G781U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM1900	1909.8	810	VOICE	26.75	26.94	-0.19
WCDMA1900	1907.6	9538	RMC	21.51	21.39	0.12
WCDMA1700	1712.4	1312	RMC	21.80	20.84	0.96
CDMA BC1	1908.8	1175	1xRTT	21.49	21.69	-0.20
LTE B25(2) (B.W 3MHz)	1913.5	26675	QPSK	21.90	21.65	0.25
LTE B41(PC2)/38 (B.W 10MHz)	2593.0	40620	QPSK	23.76	22.99	0.77
LTE B66(4) (B.W 3MHz)	1711.5	131987	QPSK	23.84	22.72	1.12
LTE B7 (B.W 20MHz)	2560.0	21350	QPSK	21.49	20.72	0.77
LTE B30 (B.W 5MHz)	2312.5	27735	QPSK	22.29	22.44	0.15
LTE B40 (B.W 5MHz)	2312.5	38775	QPSK	6.70	5.84	0.86
5G NR n25(n2) (B.W 5MHz)	1912.5	382500	PI2/BPSK	21.72	22.49	-0.77
5G NR n41 (B.W 90MHz)	2592.990	518598	PI2/BPSK	20.45	21.44	-0.99
5G NR n66 (B.W 20MHz)	1770.0	354000	PI2/BPSK	22.68	22.38	0.30

1.3 RADIATED SPURIOUS EMISSIONS

Mode, Channel, (Frequency)	Freq. (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm]	C.L	Pol.	Result (dBm)
GSM850 CH 190 (836.6)	2,509.80	-41.76	10.75	-45.48	2.50	V	-37.23
WCDMA850 CH 4183 (836.6)	2,509.80	-46.11	10.75	-49.83	2.50	V	-41.58
CDMA BC10 CH 684 (823.1)	2,469.30	-42.16	10.59	-46.29	2.47	V	-38.17
CDMA BC0 CH 777 (848.3)	2,544.90	-40.86	10.88	-44.15	2.52	V	-35.79
LTE B12 CH 23165 (714.5)	2,143.50	-48.33	9.37	-50.88	2.29	H	-43.80
LTE B13 CH 23255 (784.5)	3,138.0	-54.13	11.18	-54.11	2.82	H	-45.75
LTE B13 Narrow Band CH 23230 (782.0)	1607.21	-63.17	9.35	-72.11	1.99	H	-64.75
LTE B14 CH 23330 (793.0)	2,379.0	-47.71	10.05	-50.29	2.44	V	-42.68
LTE B14 Narrow Band CH 23330 (793.0)	1577.22	-62.11	9.05	-70.09	1.95	V	-62.99
LTE B26(22) CH 27033 (848.3)	2,544.90	-45.35	10.87	-48.63	2.52	V	-40.28
LTE B26(part90) CH 26790 (824)	2,472.00	-44.32	10.60	-48.45	2.47	V	-40.32
LTE B71 CH 133422 (693)	2,079.00	-47.34	10.00	-51.91	2.26	H	-44.17
5G NR n5 CH 168800 (844)	3,376.00	-57.17	12.60	-58.30	2.93	H	-48.63
5G NR n71 CH 139100 (695.5)	2,086.50	-51.44	9.95	-55.72	2.26	V	-48.03

Modulation	Frequency		Mode	SM-G781V (dBm)	SM-G781U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM850	2,509.80	190	VOICE	-37.14	-37.23	0.09
WCDMA850	2,509.80	4183	RMC	-43.53	-41.58	-1.95
CDMA BC10	2,469.30	684	1xRTT	-39.93	-38.17	-1.76
CDMA BC0	2,544.90	777	1xRTT	-37.35	-35.79	-1.56
LTE B12 (B.W 3MHz)	2,143.50	23165	QPSK	-43.28	-43.80	0.52
LTE B13 (B.W 5MHz)	3,138.0	23255	QPSK	-43.62	-45.75	2.13
LTE B13 Narrow Band (B.W 10MHz)	1607.21	23230	QPSK	-65.17	-64.75	-0.42
LTE B14 (B.W 10MHz)	2,379.0	23330	QPSK	-42.86	-42.68	-0.18
LTE B14 Narrow Band (B.W 10MHz)	1577.22	23330	QPSK	-59.29	-62.99	3.70
LTE B26(2) (B.W 1.4MHz)	2,544.90	27033	QPSK	-41.25	-40.28	-0.97
LTE B26(part90) (B.W 3MHz)	2,472.00	26790	QPSK	-41.78	-40.32	-1.46
LTE B71 (B.W 10MHz)	2,079.00	133422	QPSK	-44.88	-44.17	-0.71
5G NR n5 (B.W 20MHz)	3,376.00	168800	Pi2/BPSK	-49.34	-48.63	-0.71
5G NR n71 (B.W 5MHz)	2,086.50	139100	Pi2/BPSK	-47.44	-48.03	0.59

Mode, Channel (Frequency)	Freq. (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm]	C.L	Pol.	Result (dBm)
GSM1900 CH 661 (1880.0)	7,520.00	-56.71	11.30	-46.14	4.46	V	-39.30
WCDMA1900 CH 9538 (1907.6)	7,630.40	-56.81	11.60	-46.48	4.48	V	-39.36
WCDMA1700 CH 1412 (1732.4)	6,929.60	-56.87	12.05	-49.57	4.28	V	-41.80
CDMA BC1 CH 600 (1880.0)	7,520.00	-56.87	11.30	-46.30	4.46	V	-39.46
LTE B25(2) CH 26675 (1913.5)	7,654.00	-56.19	11.70	-45.58	4.47	V	-38.34
LTE B41(38) CH 39675 (2498.5)	7,495.50	-55.49	11.20	-55.68	4.47	V	-48.95
LTE B66(4) CH 132572 (1770.0)	7,080.00	-55.71	11.40	-46.69	4.32	H	-39.61
LTE B7 CH 21375 (2562.5)	10,250.00	-57.31	11.00	-52.30	5.39	V	-46.69
LTE B30 CH 27710 (2307.5)	9,230.00	-54.01	10.70	-50.25	5.06	H	-44.61
LTE B40 CH 38775 (2312.5)	9,250.00	-56.77	10.70	-53.53	5.06	V	-47.89
5G NR n25(n2) CH 382500 (1912.5)	7,650.00	-56.38	11.70	-45.72	4.46	V	-38.48
5G NR n41 CH 518598 (2592.99)	10,371.96	-56.12	10.75	-51.40	5.45	V	-46.10
5G NR n66 CH 354000 (1770.0)	7,080.00	-55.01	11.40	-45.99	4.32	V	-38.91

Modulation	Frequency		Mode	SM-G781V (dBm)	SM-G781U (dBm)	Deviation (dB)
	MHz	Ch.				
GSM1900	7520.00	661	VOICE	-39.49	-39.30	-0.19
WCDMA1900	7630.40	9538	RMC	-37.23	-39.36	2.13
WCDMA1700	6929.60	1412	RMC	-39.56	-41.80	2.24
CDMA BC1	7520.00	600	1xRTT	-38.88	-39.46	0.58
LTE B25(2) (B.W 3MHz)	7654.00	26675	QPSK	-39.66	-38.34	-1.32
LTE B41(PC2)/38 (B.W 5MHz)	7495.50	39675	QPSK	-46.36	-48.95	2.59
LTE B66(4) (B.W 20MHz)	7080.00	132572	QPSK	-39.76	-39.61	-0.15
LTE B7 (B.W 15MHz)	10250.00	21375	QPSK	-48.38	-46.69	-1.69
LTE B30 (B.W 5MHz)	9230.00	27685	QPSK	-43.73	-44.61	0.88
LTE B40 (B.W 5MHz)	9250.00	38775	QPSK	-47.63	-47.89	0.26
5G NR n25(n2) (B.W 5MHz)	7650.00	382500	Pi2/BPSK	-39.68	-38.48	-1.20
5G NR n41 (B.W 20MHz)	10371.96	518598	Pi2/BPSK	-45.88	-46.10	0.22
5G NR n66 (B.W 20MHz)	7080.00	354000	Pi2/BPSK	-40.43	-38.91	-1.52

2. Summary of the spot check for Unlicensed EMC

Mod	Test Item	Mod/ Channel	Measured Frequency [MHz]	SM-G781V Result [dBuV/m]		SM-G781U Result [dBuV/m]		Deviation (dB)	
				Peak	Average	Peak	Average	Peak	Average
BT	Band Edge	ANT0_ipa, 3-DH5, ch 78	2483.5 MHz~2500 MHz	55.64	48.18	57.39	49.45	-1.75	-1.27
	RSE	ANT0_ipa,DH 5, ch 78	7440 MHz	51.57	39.17	51.23	37.90	0.34	1.27
BT LE	Band Edge	2 M, 37 byte, ch 0	2310 MHz~2390 MHz	56.76	49.19	56.63	49.97	0.13	-0.78
	RSE	2 M, 37 byte, ch 39	7440 MHz	51.89	44.26	51.42	44.14	0.47	0.12
DTS	Band Edge	802.11g, ch 13, PLS 7 (MIMO)	2483.5 MHz~2500 MHz	66.11	-	67.47	-	-1.36	-
			# 2483.5 MHz~2484.5 MHz	-	51.53	-	53.01	-	-1.48
			2484.5 MHz~2500 MHz	-	49.57	-	51.25	-	-1.68
	RSE	802.11b, ch 11, PLS 19 (MIMO)	4924 MHz	47.64	41.01	49.51	43.59	-1.87	-2.58
UNII	Band Edge	802.11n_HT40, ch 62, PLS 15 (MIMO)	5350 ~ 5460 MHz	61.64	48.46	62.44	50.33	-0.80	-1.87
	RSE	802.11a, ch 165, PLS 19 (MIMO)	17475 MHz	58.40		57.83		0.57	
NFC		Fundmental (Type A, 106 kbps, without tag)	13.56 MHz	16.92		15.64		1.28	
		RSE	30 MHz ~ 1GHz	20.51		20.48		0.03	
WPT		Fundmental (Cross_with TA 15W, 1~20%)	113.05 kHz	8.78		7.92		0.86	

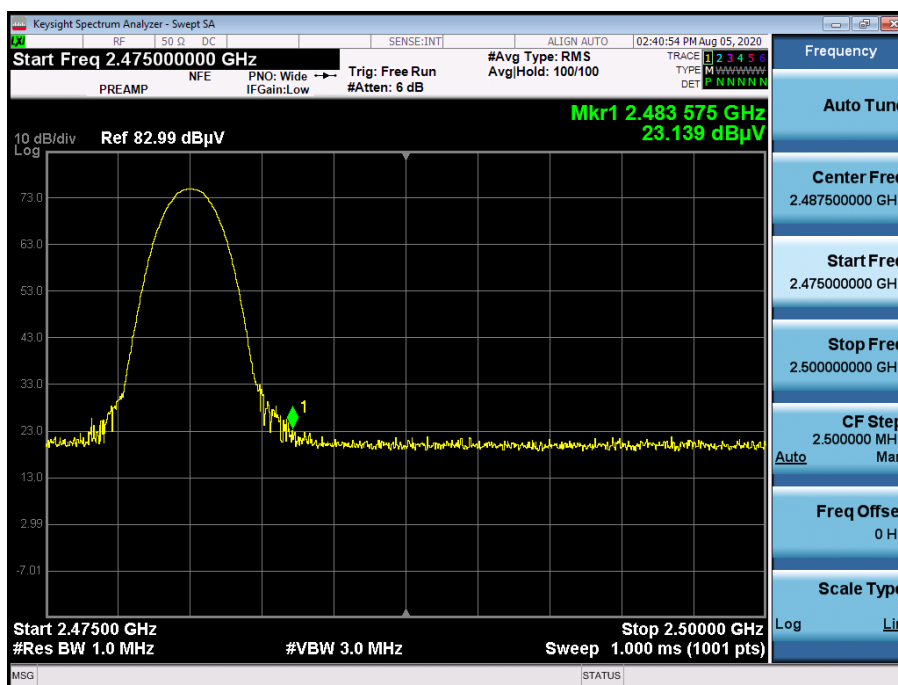
3. Test Plot

BT Band Edge (3DH5/ch.78)

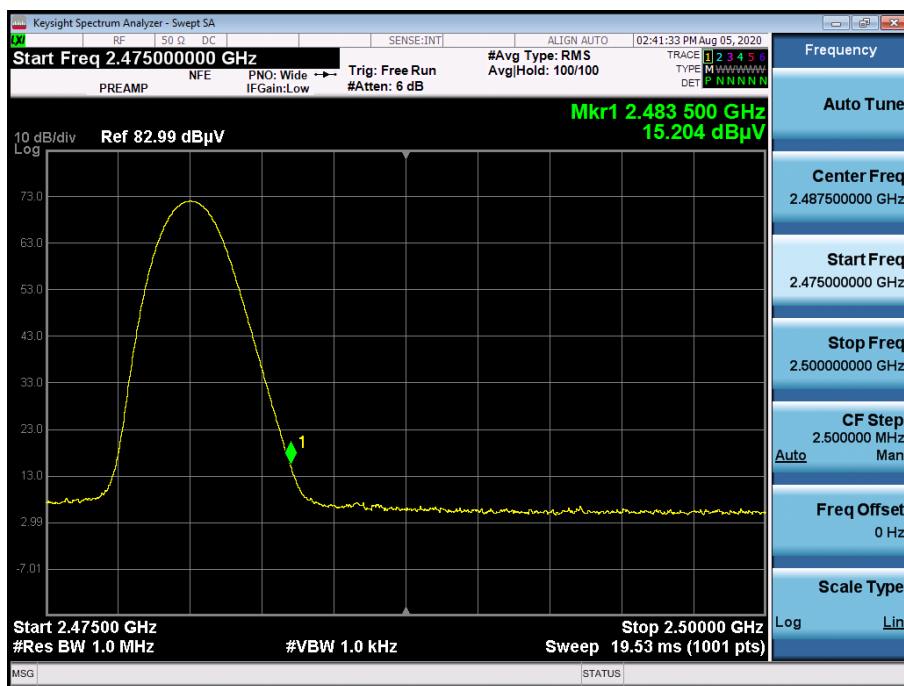
Bandedge

Frequency [MHz]	Reading [dBuV]	A.F.+CL [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	23.139	34.25	H	57.39	73.98	16.59	PK
2483.5	15.204	34.25	H	49.45	53.98	4.53	AV

[Radiated Restricted Band Edges plot- Peak Reading]



[Radiated Restricted Band Edges plot- Average Reading]

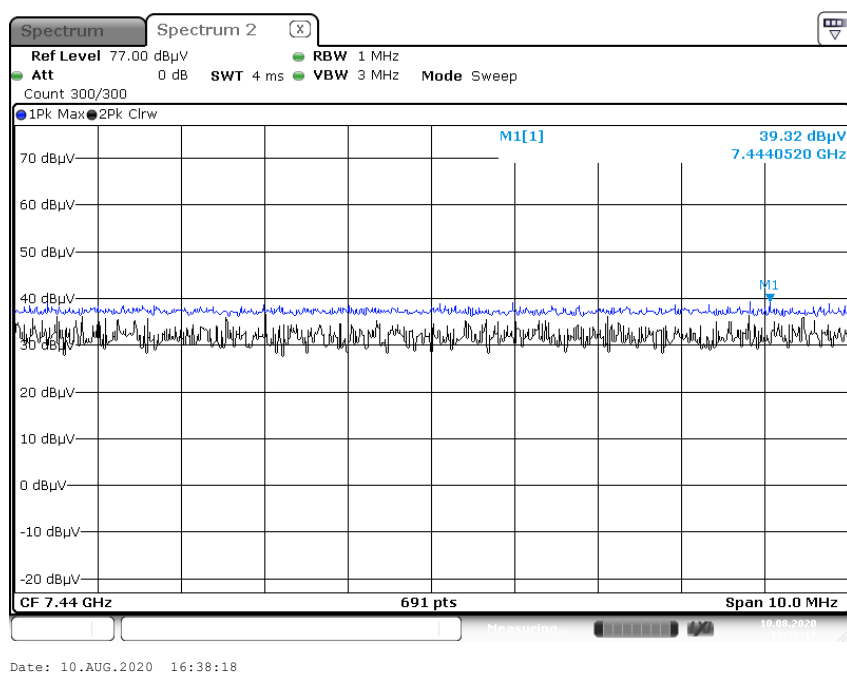


BT R.S.E 3rd Harmonic(DH5/ch.78)

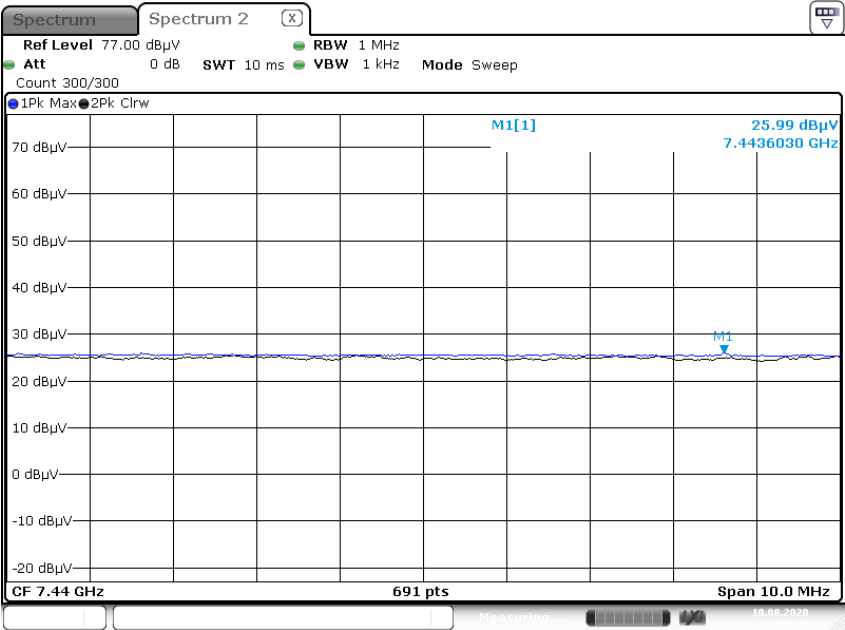
RSE

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
7440	39.32	11.91	V	51.23	73.98	22.75	PK
7440	25.99	11.91	V	37.90	53.98	16.08	AV

[Radiated Spurious Emissions plot – Peak Reading]



[Radiated Spurious Emissions plot – Average Reading]



Date: 10.AUG.2020 16:37:28

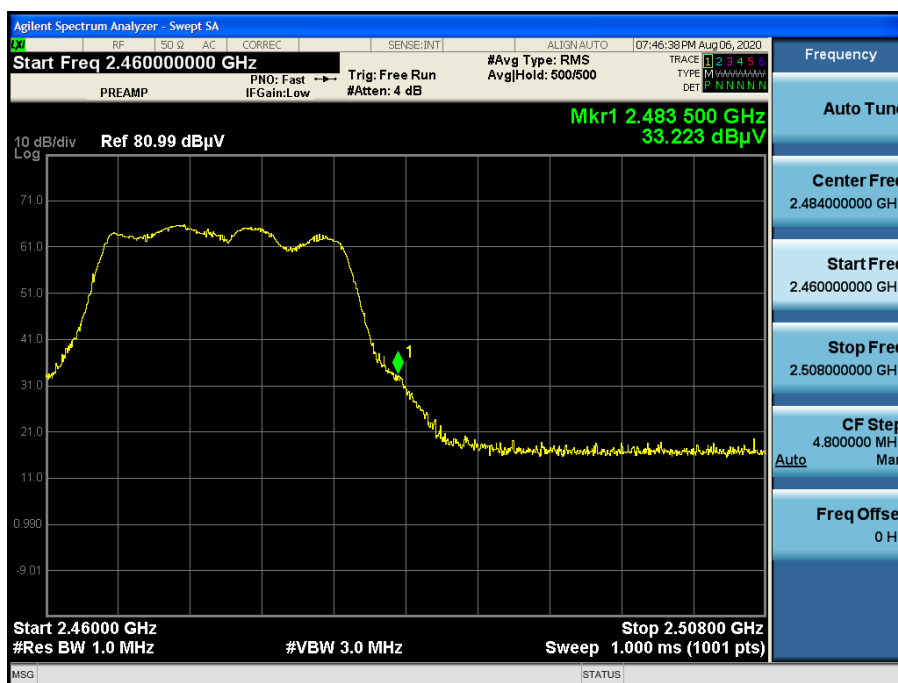
DTS Band Edge (802.11g_ 6 Mbps_ch13)

Bandedge

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F.+C.L+ ATT-A.G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	33.223	0.00	34.25	H	67.47	73.98	6.51	PK
# 2483.5~ 2484.5	18.760	0.00	34.25	H	53.01	53.98	0.97	AV
2484.5 ~ 2500	17.004	0.00	34.25	H	51.25	53.98	2.73	AV

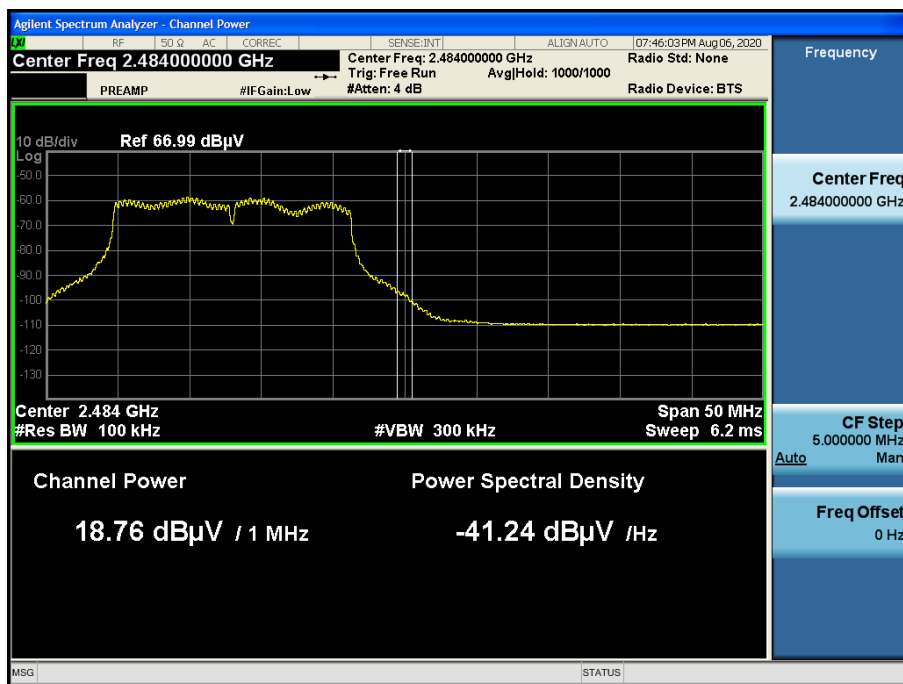
Note : "# " integration method Used (ANSI C63.10 Section11.13.3)

[Radiated Restricted Band Edges plot – Peak Reading]



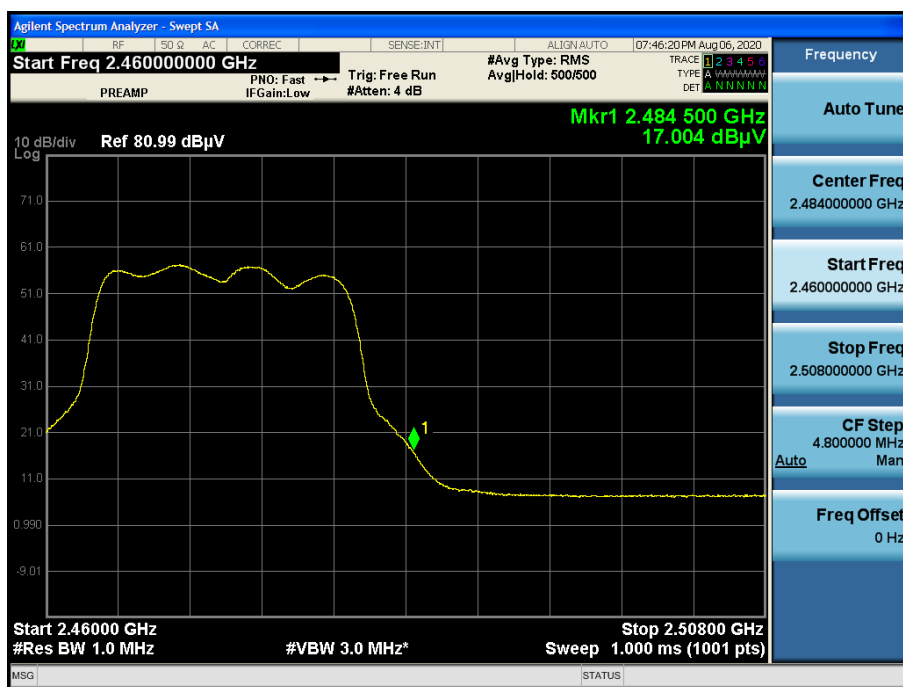
[Radiated Restricted Band Edges plot – Average Reading]

2 483.5 ~ 2 484.5 MHz



[Radiated Restricted Band Edges plot – Average Reading]

2 484.5 ~ 2 500 MHz

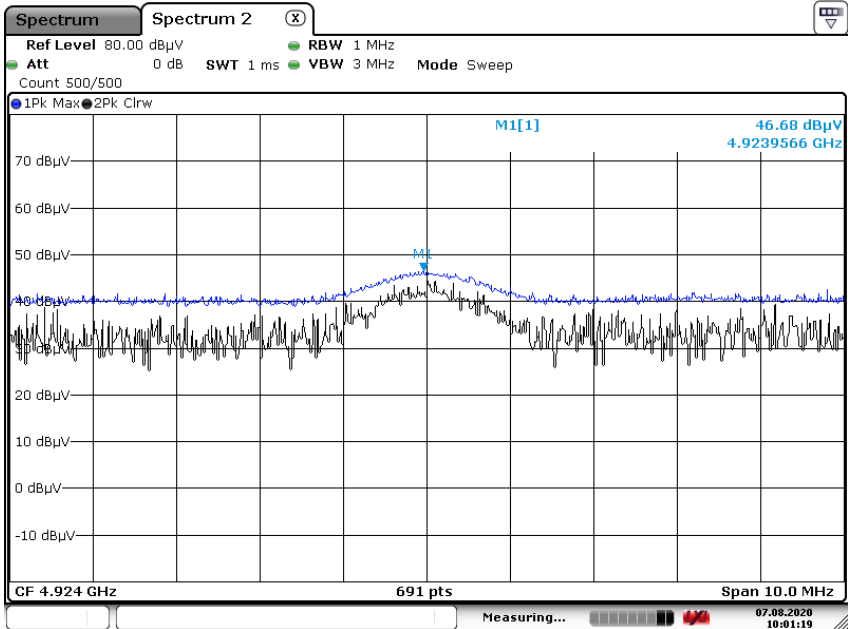


DTS R.S.E 2nd Harmonic (802.11b 1Mbps/ch.11)

RSE

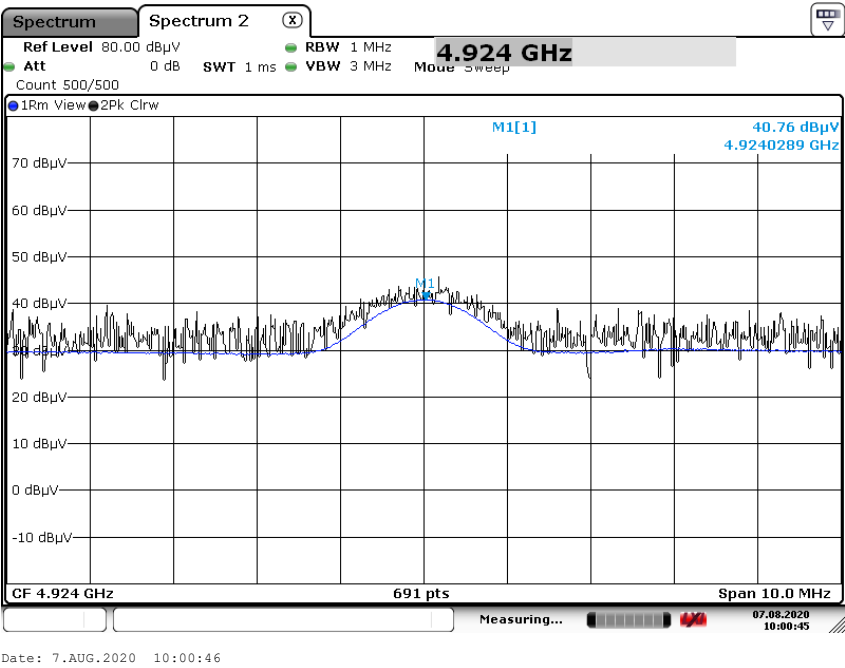
Frequency	Reading	AN.+CL-AMP G	Pol.	Total	Limit	Margin	Measurement
[MHz]	[dBuV]	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Type
4924	46.68	2.83	H	49.51	73.98	24.47	PK
4924	40.76	2.83	H	43.59	53.98	10.39	AV

[Radiated Spurious Emissions plot – Peak Reading]



Date: 7.AUG.2020 10:01:20

[Radiated Spurious Emissions plot – Average Reading]

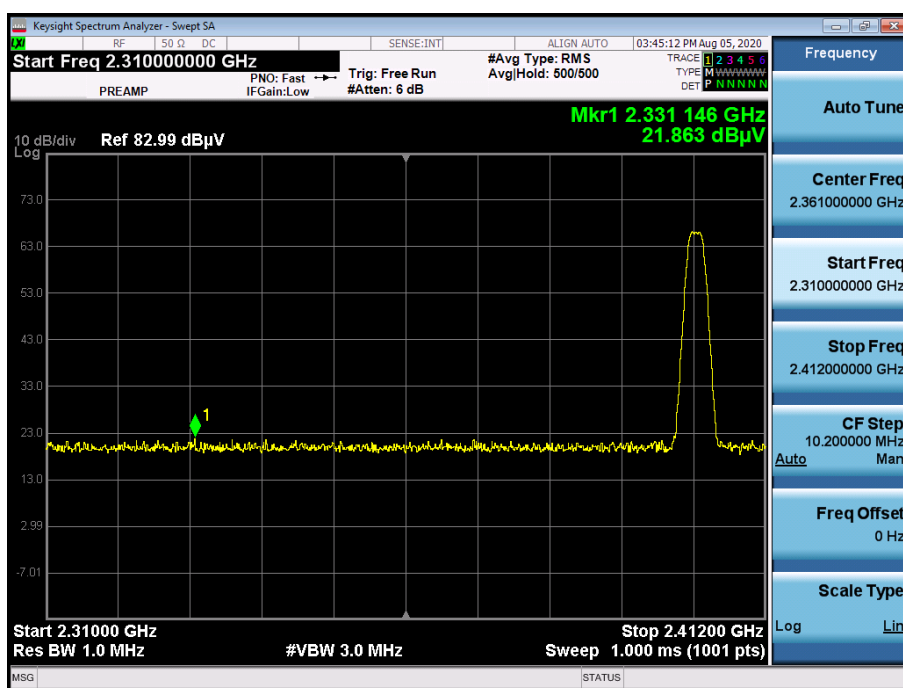


BT(LE) Band Edge (LE(5.0) 2M 37byte/ch.0)

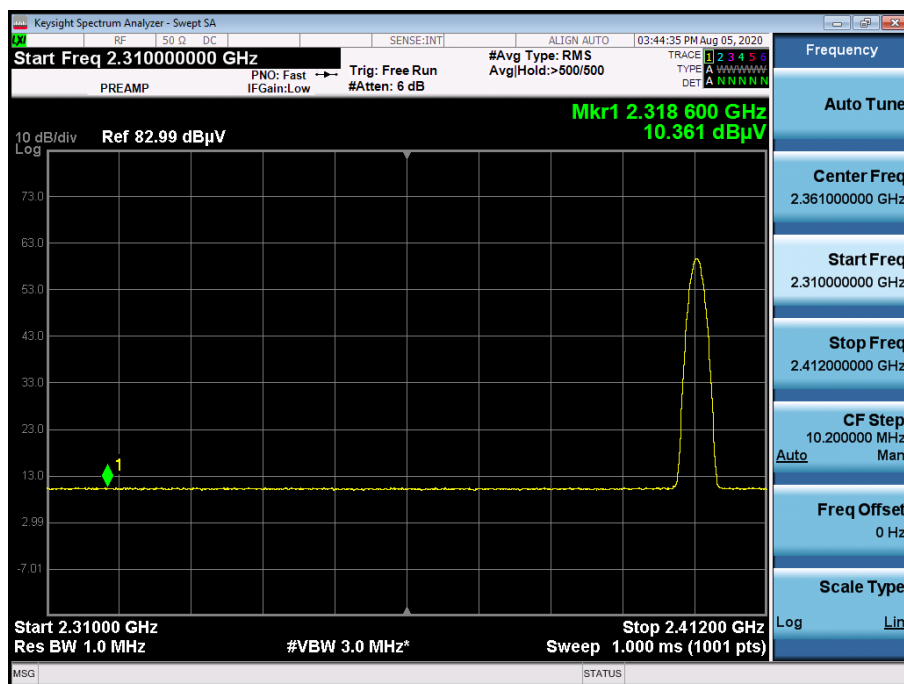
Bandedge

Frequency [MHz]	Reading [dBuV]	Duty cycle Factor [dB]	A.F.+CL [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	21.863	0.00	34.77	H	56.63	73.98	17.35	PK
2390.0	10.361	4.84	34.77	H	49.97	53.98	4.01	AV

[Radiated Restricted Band Edges plot – Peak Reading]



[Radiated Restricted Band Edges plot – Average Reading]

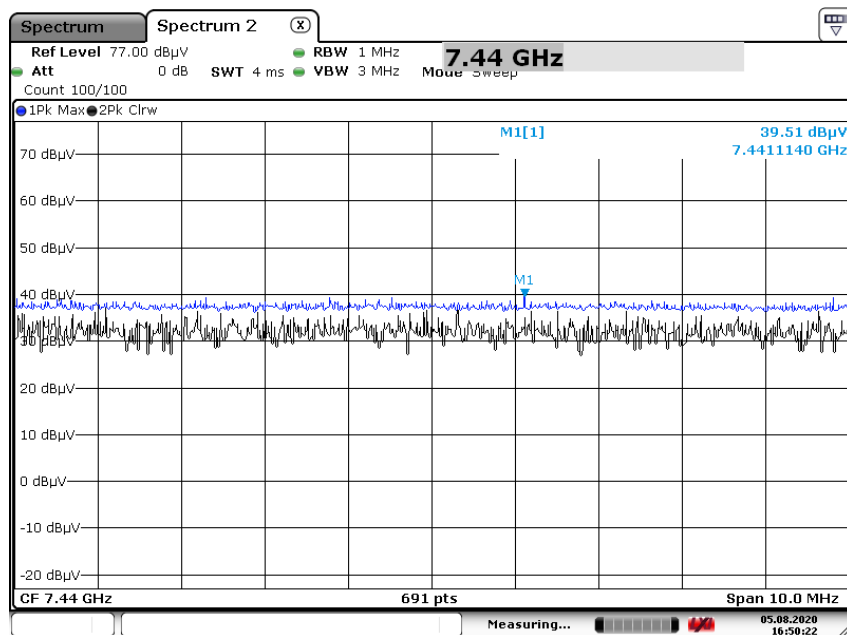


BT(LE) R.S.E 3rd Harmonic (LE(5.0) 2M 37byte/ch.39)

RSE

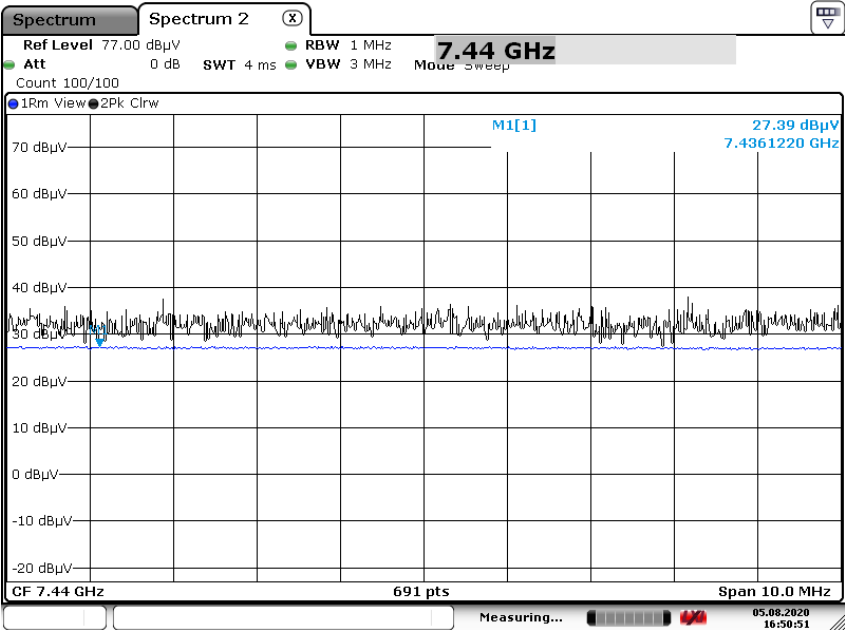
Frequency	Reading	Duty cycle						
		Factor	AN.+CL-AMP G	Pol.	Total	Limit	Margin	Measurement
[MHz]	[dBuV]	[dB]	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Type
7440	39.51	0.00	11.91	V	51.42	73.98	22.56	PK
7440	27.39	4.84	11.91	V	44.14	53.98	9.84	AV

[Radiated Spurious Emissions plot – Peak Reading]



Date: 5.AUG.2020 16:50:22

[Radiated Spurious Emissions plot – Average Reading]



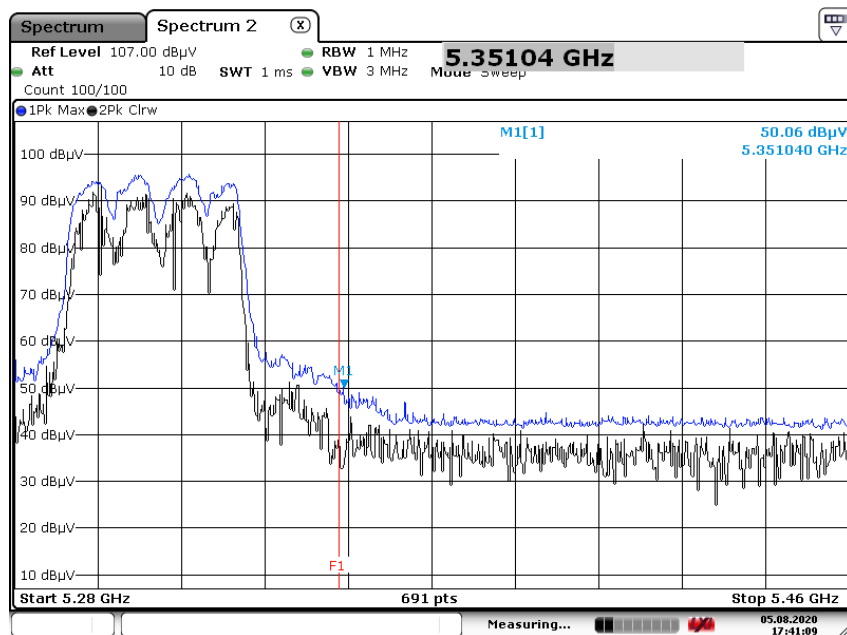
Date: 5.AUG.2020 16:50:52

U-NII Band Edge (802.11n_40 MHz BW 13.5 Mbps_ch62)

Bandedge

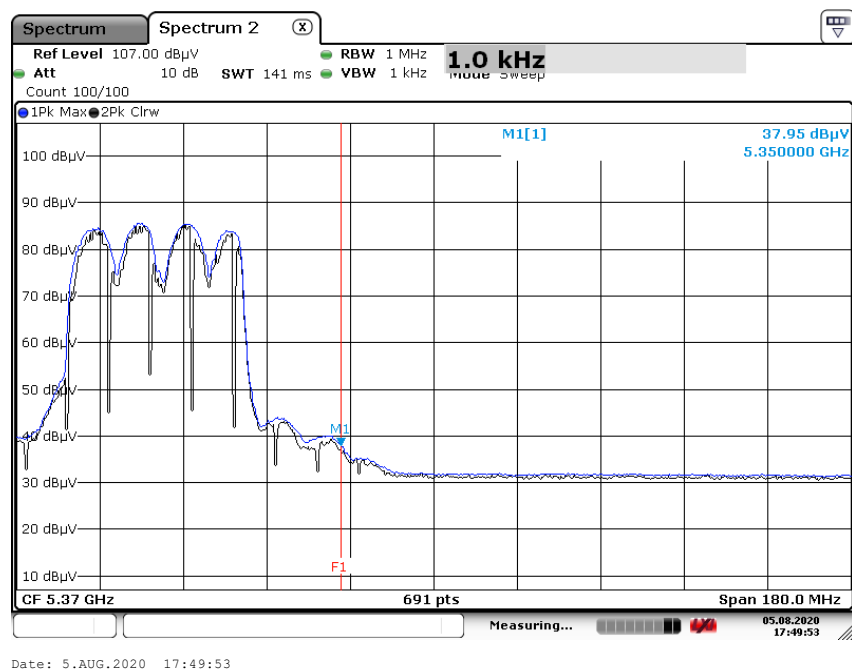
Frequency [MHz]	Reading [dBuV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	50.06	12.38	H	62.44	73.98	11.54	PK
5350	37.95	12.38	H	50.33	53.98	3.65	AV

Radiated Restricted Band Edges plot – Peak Reading



Date: 5.AUG.2020 17:41:08

Radiated Restricted Band Edges plot – Average Reading

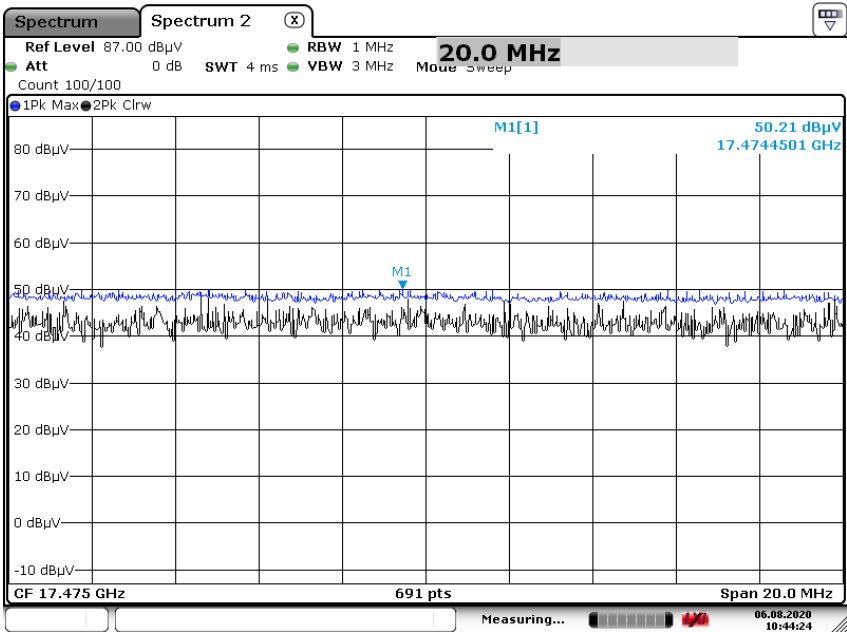


U-NII R.S.E 3rd Harmonic (802.11a_6 Mbps _ ch 165)

RSE

Frequency	Reading	AN.+CL-AMP G	Pol.	Total	Limit	Margin	Measurement
[MHz]	[dBuV]	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Type
17475	50.21	7.62	V	57.83	68.20	10.37	PK

[Radiated Spurious Emissions plot – Peak Reading]



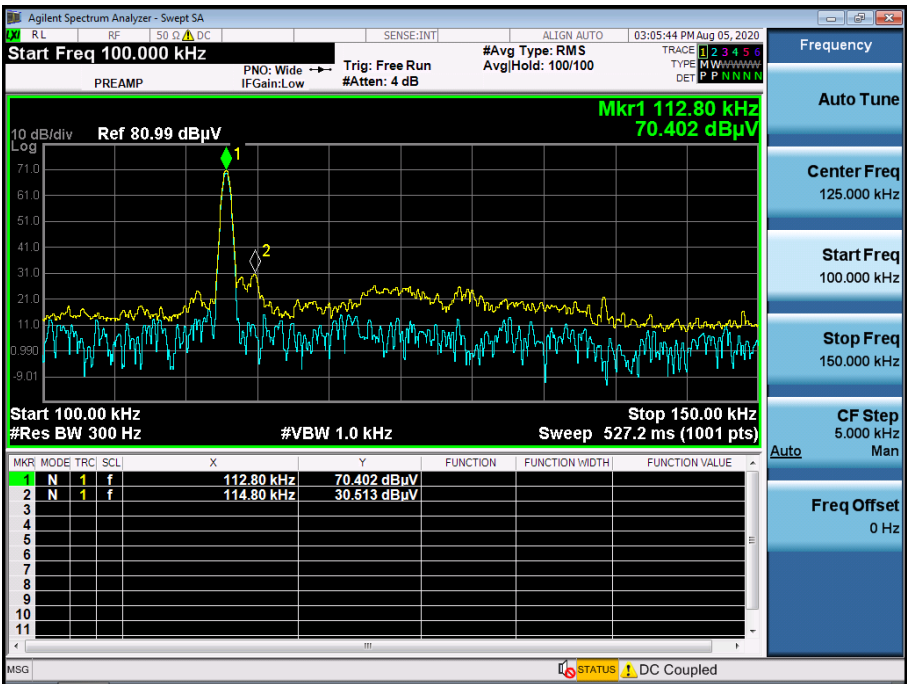
Date: 6.AUG.2020 10:44:24

WPT

Fundamental

Frequency (kHz)	Reading Level (dBuV/m)@3m	Ant.Factor (dB/m)	Cable Loss (dB)	Distance Correction (dB)	Result Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
# 112.8	70.402	17.1	0.42	-80	7.92	26.56	18.64

[plot]



NFC fund

Frequency	Read Level	Ant.Factor+Cable Loss	Distance Correction	Ant. POL	Result Level	Limit	Margin
(MHz)	(dBuV)@3m	(dB/m)	(dB)		(dBuV/m)@30m	(dBuV/m)@30m	(dB)
13.5600	37.105	18.53	-40.00	H	15.64	84.00	68.37

[plot]

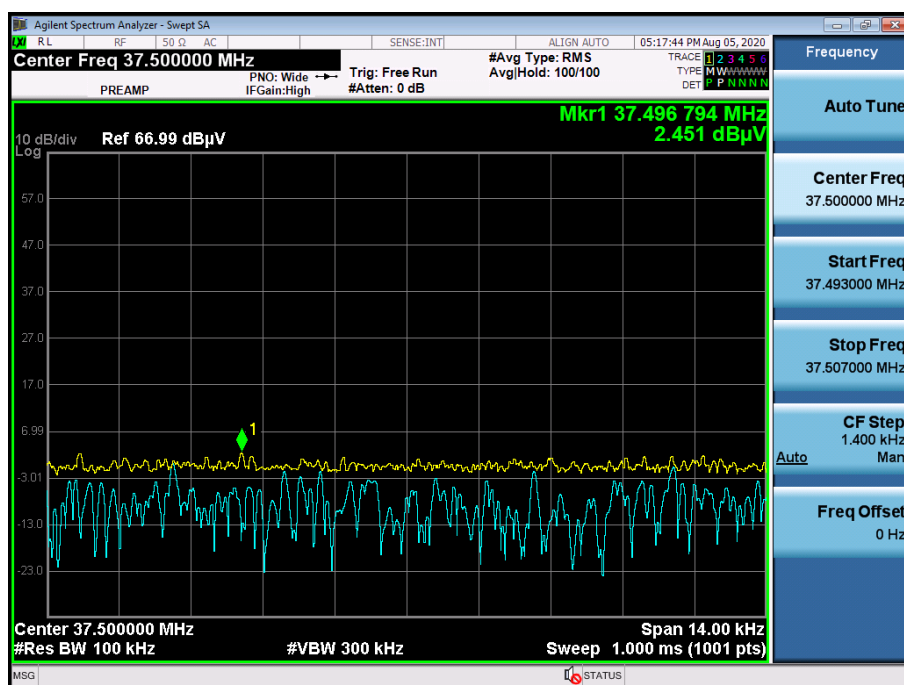


NFC R.S.E Harmonic

RSE

Frequency	Reading dB μ V	Ant. factor dB /m	Cable loss dB	Ant. POL (H/V)	Total dB μ V/m	Limit dB μ V/m	Margin dB
# 37.3968	2.451	17.50	0.53	H	20.48	40.00	19.52

[Radiated Spurious Emissions plot]



4. List of test equipment

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
T&M SYSTEM	FBSR-02B(WHK1.2/15G-10EF)/H.P.F	-	03/09/2020	Annual	03/09/2021
T&M SYSTEM	FBSR-02B(WHK3.3/18G-10EF)/H.P.F	-	03/09/2020	Annual	03/09/2021
WAINWRIGHT INSTRUMENT	WHNX6.0/26.5G-6SS/H.P.F	1	03/19/2020	Annual	03/19/2021
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	11275	04/27/2020	Annual	04/27/2021
Hewlett Packard	E3632A/DC Power Supply	MY4004427	09/27/2019	Annual	09/27/2020
Schwarzbeck	UHAP/ Dipole Antenna	557	03/29/2019	Biennial	03/29/2021
Schwarzbeck	UHAP/ Dipole Antenna	558	03/29/2019	Biennial	03/29/2021
ESPEC	SU-642 / Chamber	93008124	03/18/2020	Annual	03/18/2021
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	08/29/2019	Biennial	08/29/2021
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	09/25/2019	Biennial	09/25/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/29/2019	Biennial	04/29/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	02/11/2020	Biennial	02/11/2022
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY51110063	04/27/2020	Annual	04/27/2021
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/04/2020	Annual	06/04/2021
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/14/2019	Annual	10/14/2020
Agilent	8960 (E5515C)/ Base Station	MY48360800	08/27/2019	Annual	08/27/2020
Schwarzbeck	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-175	04/26/2019	Biennial	04/26/2021
Schwarzbeck	VULB9160/ Bilog Antenna	3150	03/12/2019	Biennial	03/12/2021
Schwarzbeck	VULB9160/ Hybrid Antenna	760	03/22/2019	Biennial	03/22/2021
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6262116770	07/22/2020	Annual	07/22/2021
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/22/2020	Annual	01/22/2021
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/13/2020	Annual	07/13/2021
KEYSIGHT	E7515B / 5G Wireless Tester	MY58300756	01/07/2020	Annual	01/07/2021
KEYSIGHT	N9030B / Signal Analyzer(5Hz~40.0GHz)	MY55480167	06/04/2020	Annual	06/04/2021
Mini-Circuits	ZC4PD-K1844+ / 4-Way Divider	942907	09/05/2019	Annual	09/05/2020
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Audix	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	05/18/2020	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	03/22/2019	Biennial	760
Schwarzbeck	BBHA 9120D / Horn Antenna	04/29/2019	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	11/29/2019	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	04/27/2020	Annual	100854
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/26/2019	Annual	101068-SZ
Agilent	N9020A / Signal Analyzer	05/11/2020	Annual	MY51110085
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	01/21/2020	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	02/10/2020	Annual	1
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	03/02/2020	Annual	8
Wainwright Instruments	WHKX8-6090-7000-18000-40SS/ High Pass Filter	03/02/2020	Annual	25
Api tech.	18B-03 / Attenuator (3 dB)	03/02/2020	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	03/02/2020	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	03/02/2020	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	03/02/2020	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	12/26/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	03/23/2020	Annual	25956
TESCOM	TC-3000C / Bluetooth Tester	03/18/2020	Annual	3000C000276