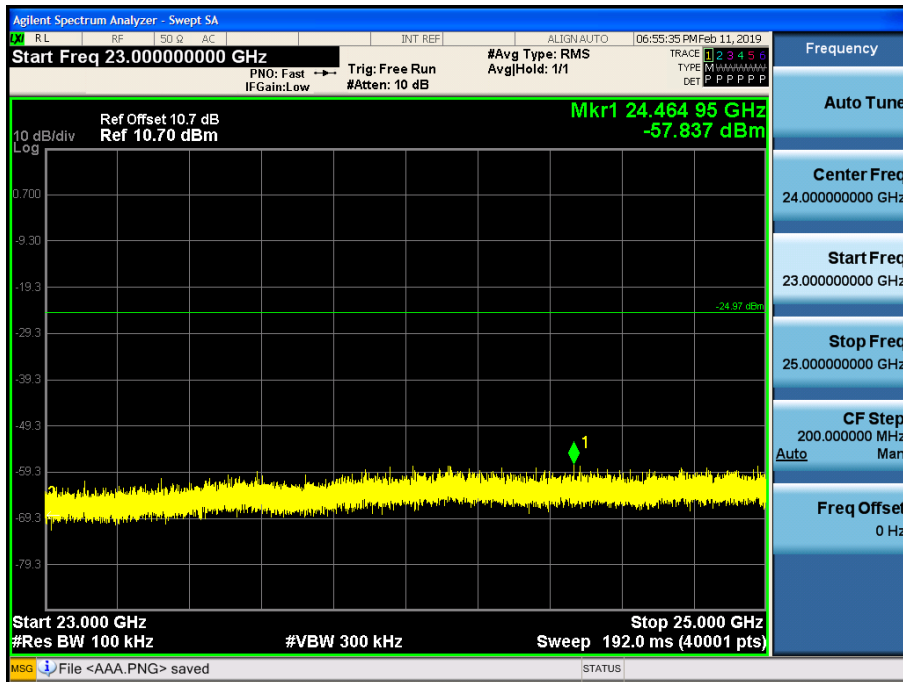


23 GHz ~ 25 GHz

Conducted Spurious Emission (CH 39)



## 9.6 RADIATED SPURIOUS EMISSIONS

### Frequency Range : 9 kHz – 30MHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor =  $40 \cdot \log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor
4. Radiated test is performed with hopping off.
5. The test results for below 30 MHz is correlated to an open site.  
The result on OFS is about 2 dB higher than semi-anechoic chamber(10 m chamber)

### Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

**Frequency Range : Above 1 GHz**

**Mode : 1M Bit/s**

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.35	0.00	0.74	V	49.09	73.98	24.89	PK
4804	36.28	2.04	0.74	V	39.06	53.98	14.92	AV
7206	45.89	0.00	9.25	V	55.14	73.98	18.85	PK
7206	34.15	2.04	9.25	V	45.44	53.98	8.55	AV
4804	48.68	0.00	0.74	H	49.42	73.98	24.56	PK
4804	36.42	2.04	0.74	H	39.20	53.98	14.78	AV
7206	46.27	0.00	9.25	H	55.52	73.98	18.47	PK
7206	34.18	2.04	9.25	H	45.47	53.98	8.52	AV

Operation Mode: CH Mid

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	48.01	0.00	1.16	V	49.17	73.98	24.81	PK
4880	36.15	2.04	1.16	V	39.35	53.98	14.63	AV
7320	47.62	0.00	9.14	V	56.76	73.98	17.22	PK
7320	33.75	2.04	9.14	V	44.93	53.98	9.05	AV
4880	48.54	0.00	1.16	H	49.70	73.98	24.28	PK
4880	36.22	2.04	1.16	H	39.42	53.98	14.56	AV
7320	47.73	0.00	9.14	H	56.87	73.98	17.11	PK
7320	33.83	2.04	9.14	H	45.01	53.98	8.97	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.89	0.00	0.76	V	51.65	73.98	22.33	PK
4960	37.35	2.04	0.76	V	40.15	53.98	13.83	AV
7440	46.13	0.00	9.86	V	55.99	73.98	17.99	PK
7440	33.61	2.04	9.86	V	45.51	53.98	8.47	AV
4960	51.19	0.00	0.76	H	51.95	73.98	22.03	PK
4960	37.50	2.04	0.76	H	40.30	53.98	13.68	AV
7440	46.47	0.00	9.86	H	56.33	73.98	17.65	PK
7440	33.67	2.04	9.86	H	45.57	53.98	8.41	AV

**Mode : 2M Bit/s**

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	47.99	0.00	0.74	V	48.73	73.98	25.25	PK
4804	36.25	4.81	0.74	V	41.80	53.98	12.18	AV
7206	45.68	0.00	9.25	V	54.93	73.98	19.06	PK
7206	34.11	4.81	9.25	V	48.17	53.98	5.82	AV
4804	48.25	0.00	0.74	H	48.99	73.98	24.99	PK
4804	36.39	4.81	0.74	H	41.94	53.98	12.04	AV
7206	46.18	0.00	9.25	H	55.43	73.98	18.56	PK
7206	34.05	4.81	9.25	H	48.11	53.98	5.88	AV

Operation Mode: CH Mid

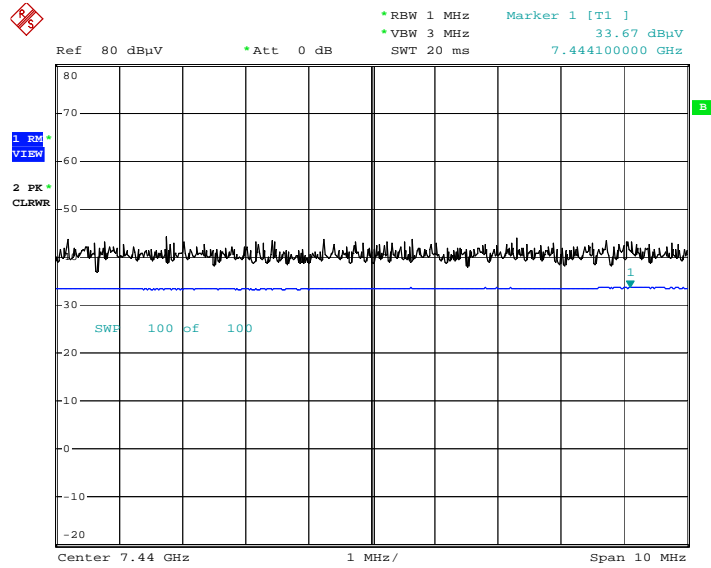
Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	47.65	0.00	1.16	V	48.81	73.98	25.17	PK
4880	36.20	4.81	1.16	V	42.17	53.98	11.81	AV
7320	47.81	0.00	9.14	V	56.95	73.98	17.03	PK
7320	33.68	4.81	9.14	V	47.63	53.98	6.35	AV
4880	48.35	0.00	1.16	H	49.51	73.98	24.47	PK
4880	36.18	4.81	1.16	H	42.15	53.98	11.83	AV
7320	47.55	0.00	9.14	H	56.69	73.98	17.29	PK
7320	33.79	4.81	9.14	H	47.74	53.98	6.24	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	48.91	0.00	0.76	V	49.67	73.98	24.31	PK
4960	37.38	4.81	0.76	V	42.95	53.98	11.03	AV
7440	45.69	0.00	9.86	V	55.55	73.98	18.43	PK
7440	33.58	4.81	9.86	V	48.25	53.98	5.73	AV
4960	49.37	0.00	0.76	H	50.13	73.98	23.85	PK
4960	37.45	4.81	0.76	H	43.02	53.98	10.96	AV
7440	46.15	0.00	9.86	H	56.01	73.98	17.97	PK
7440	33.69	4.81	9.86	H	48.36	53.98	5.62	AV

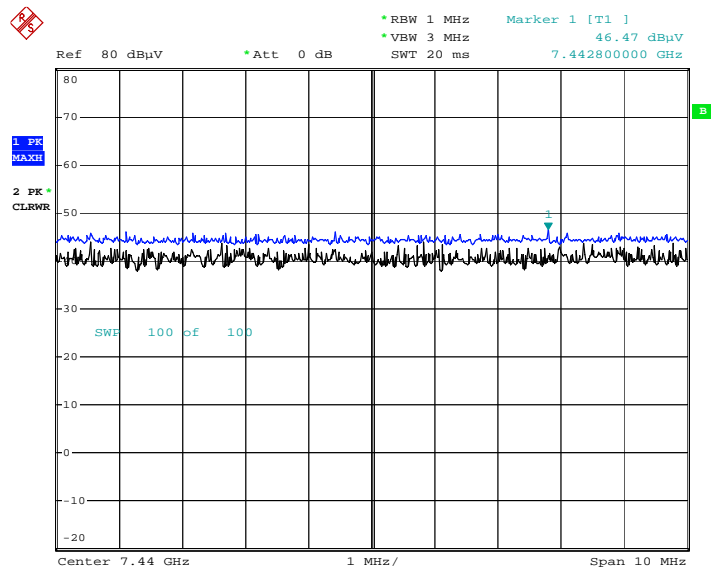
■ 1M Bit 37 Byte Test Plots

Radiated Spurious Emissions plot – Average Reading (Ch.39 3rd Harmonic\_Y-H)



Date: 12.FEB.2019 14:03:13

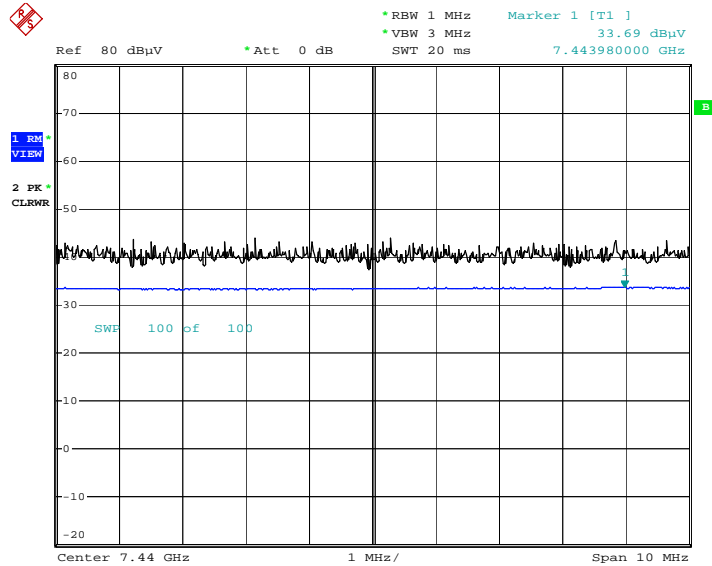
Radiated Spurious Emissions plot – Peak Reading (Ch.39 3rd Harmonic\_Y-H)



Date: 12.FEB.2019 14:02:26

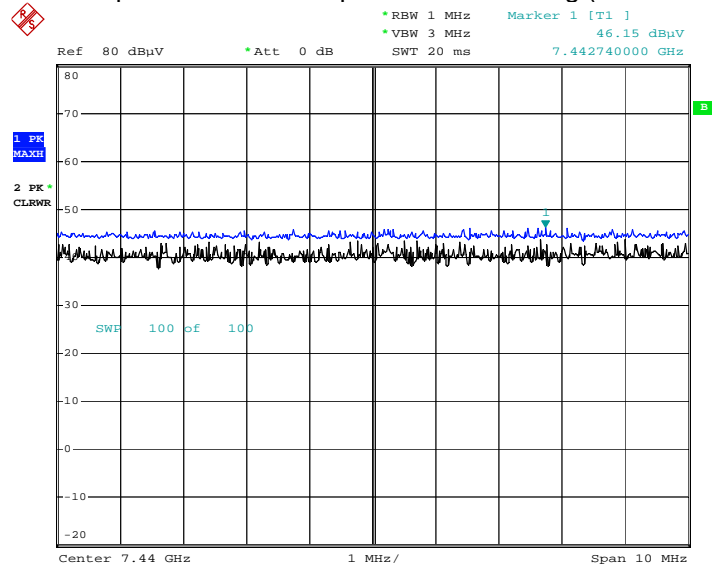
■ 2M Bit 37 Byte Test Plots (Worst case :Y-H)

Radiated Spurious Emissions plot – Average Reading (Ch.39 3rd Harmonic)



Date: 12.FEB.2019 14:00:36

Radiated Spurious Emissions plot – Peak Reading (Ch.39 3rd Harmonic)



Date: 12.FEB.2019 14:01:40

**Note:**

Plot of worst case are only reported.



### 9.7 RADIATED RESTRICTED BAND EDGES

Mode : 1M Bit/s

Operating Frequency 2402 MHz  
 Channel No. 0

Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	A.F.+C.L.+D.F. [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	19.22	0.00	33.29	H	52.51	73.98	21.48	PK
2390.0	7.40	2.04	33.29	H	42.73	53.98	11.25	AV
2390.0	19.47	0.00	33.29	V	52.76	73.98	21.22	PK
2390.0	7.41	2.04	33.29	V	42.74	53.98	11.24	AV

Operating Frequency 2480 MHz  
 Channel No. 39

Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	A.F.+C.L.+D.F. [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	23.16	0.00	33.39	H	56.55	73.98	17.43	PK
2483.5	7.51	2.04	33.39	H	42.94	53.98	11.04	AV
2483.5	23.25	0.00	33.39	V	56.64	73.98	17.34	PK
2483.5	7.54	2.04	33.39	V	42.97	53.98	11.01	AV

**Mode : 2M Bit/s**

Operating Frequency 2402 MHz  
 Channel No. 0

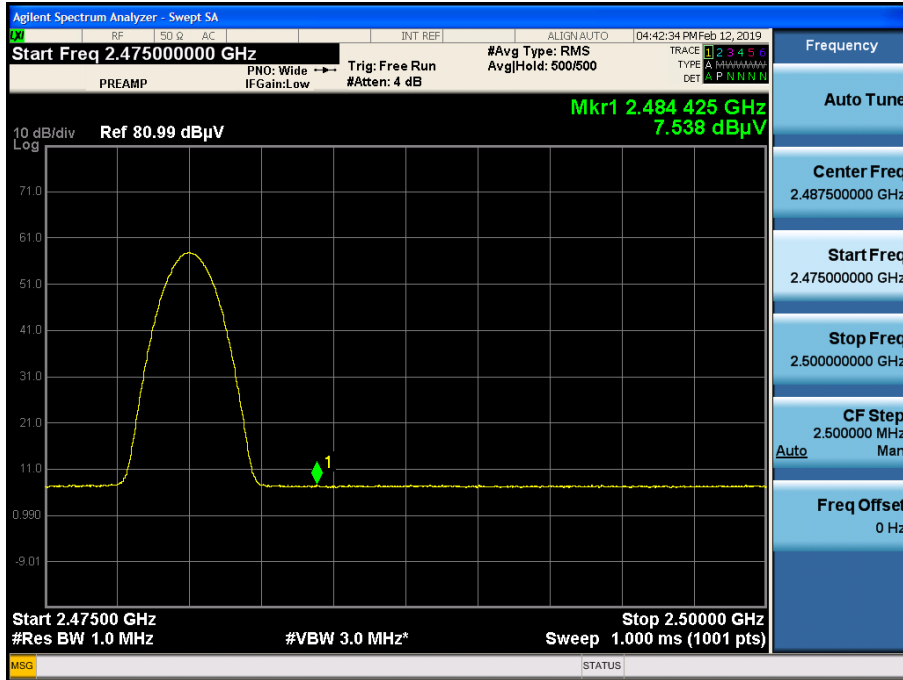
Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	A.F.+C.L.+D.F. [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	19.42	0.00	33.29	H	52.71	73.98	21.28	PK
2390.0	7.35	4.81	33.29	H	45.45	53.98	8.54	AV
2390.0	19.56	0.00	33.29	V	52.85	73.98	21.13	PK
2390.0	7.42	4.81	33.29	V	45.52	53.98	8.46	AV

Operating Frequency 2480 MHz  
 Channel No. 39

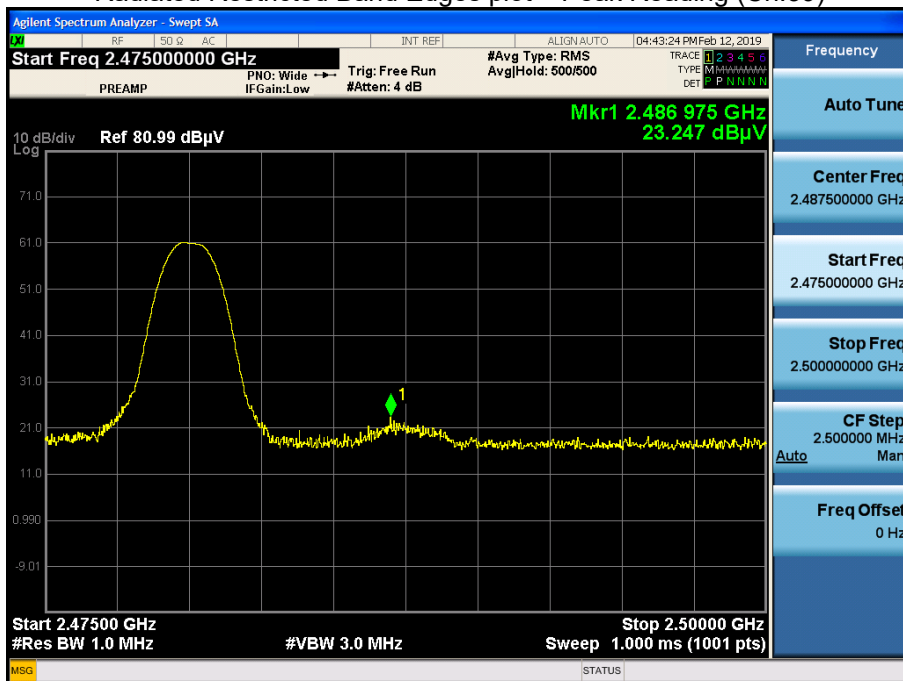
Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	A.F.+C.L.+D.F. [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	22.18	0.00	33.39	H	55.57	73.98	18.41	PK
2483.5	7.55	4.81	33.39	H	45.75	53.98	8.23	AV
2483.5	22.31	0.00	33.39	V	55.70	73.98	18.28	PK
2483.5	7.60	4.81	33.39	V	45.80	53.98	8.18	AV

Mode : 1M Bit/s Test Plots (Worst case : Z-V)

Radiated Restricted Band Edges plot – Average Reading (Ch.39)

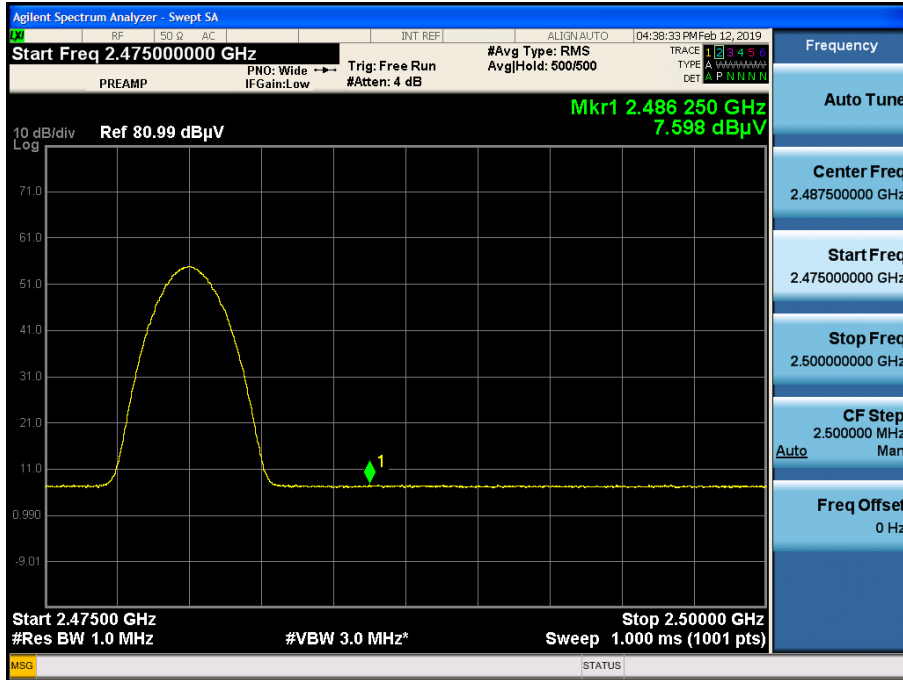


Radiated Restricted Band Edges plot – Peak Reading (Ch.39)

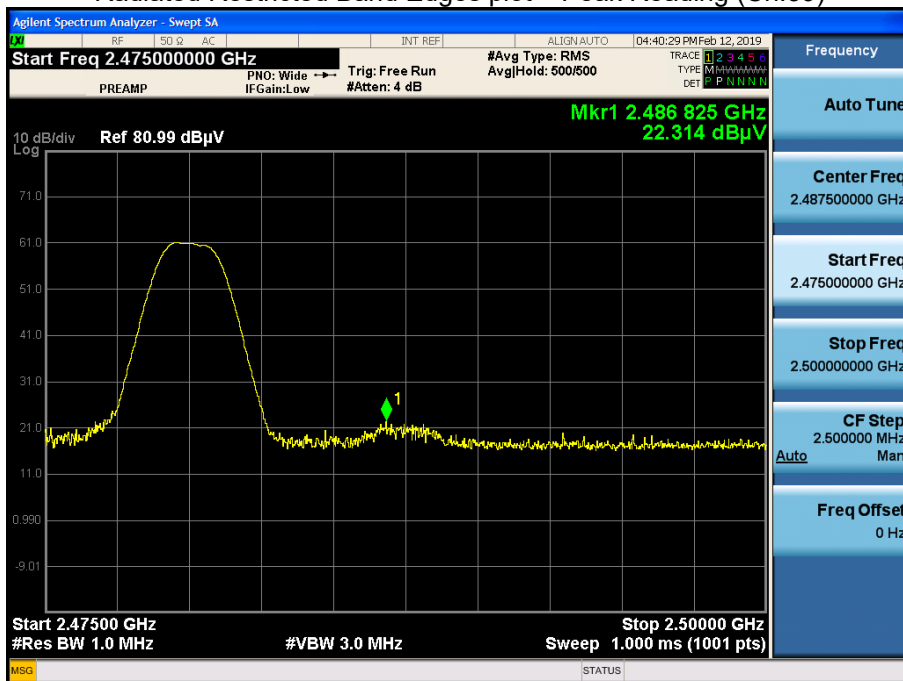


Mode : 2M Bit/s Test Plots (Worst case : Z-V)

Radiated Restricted Band Edges plot – Average Reading (Ch.39)



Radiated Restricted Band Edges plot – Peak Reading (Ch.39)



**Note:**

Plot of worst case are only reported.

## 9.8 POWERLINE CONDUCTED EMISSIONS

### Conducted Emissions (Line 1)

BT LE L1

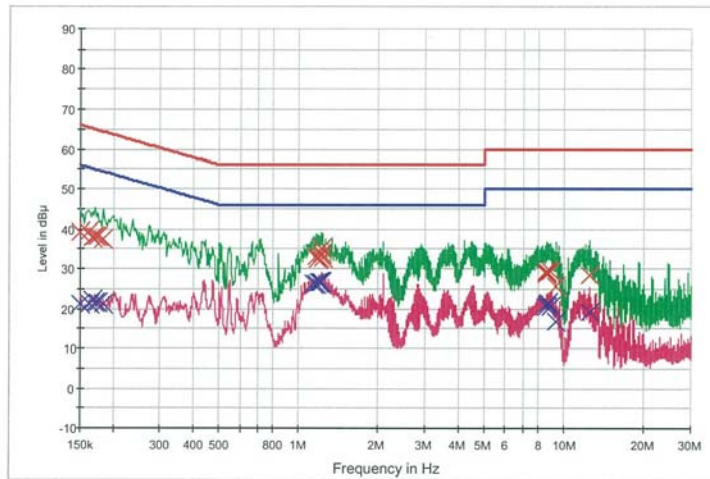
1 / 2

## HCT TEST Report

### Common Information

EUT: SM-A6060  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT LE L1

FCC CLASS B\_Exten Cable



— FCC CLASS B\_OP      — FCC CLASS B\_AV      — Preview Result 1-PK+  
 — Preview Result 2-AVG      X Final Result 1-QPK      X Final Result 2-CAV

### Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	39.0	9.000	Off	L1	9.7	27.0	66.0
0.160000	39.1	9.000	Off	L1	9.7	26.3	65.5
0.166000	37.7	9.000	Off	L1	9.7	27.4	65.2
0.170000	38.2	9.000	Off	L1	9.7	26.8	65.0
0.174000	38.3	9.000	Off	L1	9.7	26.5	64.8
0.184000	37.5	9.000	Off	L1	9.7	26.8	64.3
1.166000	33.2	9.000	Off	L1	9.8	22.8	56.0
1.170000	32.5	9.000	Off	L1	9.8	23.5	56.0
1.184000	32.6	9.000	Off	L1	9.8	23.4	56.0
1.218000	35.0	9.000	Off	L1	9.8	21.0	56.0
1.224000	33.9	9.000	Off	L1	9.8	22.1	56.0
1.228000	32.7	9.000	Off	L1	9.8	23.3	56.0
8.546000	28.7	9.000	Off	L1	10.2	31.3	60.0
8.610000	29.3	9.000	Off	L1	10.2	30.7	60.0
8.618000	28.8	9.000	Off	L1	10.2	31.2	60.0
8.856000	29.2	9.000	Off	L1	10.2	30.8	60.0
9.338000	25.5	9.000	Off	L1	10.2	34.5	60.0
12.502000	28.3	9.000	Off	L1	10.3	31.7	60.0

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BT LE L1

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**Final Result 2**

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	21.1	9.000	Off	L1	9.7	34.9	56.0
0.162000	21.3	9.000	Off	L1	9.7	34.0	55.4
0.166000	22.1	9.000	Off	L1	9.7	33.1	55.2
0.170000	21.5	9.000	Off	L1	9.7	33.4	55.0
0.174000	21.7	9.000	Off	L1	9.7	33.1	54.8
0.182000	21.3	9.000	Off	L1	9.7	33.1	54.4
1.140000	26.3	9.000	Off	L1	9.8	19.7	46.0
1.158000	26.4	9.000	Off	L1	9.8	19.6	46.0
1.166000	26.3	9.000	Off	L1	9.8	19.7	46.0
1.184000	26.7	9.000	Off	L1	9.8	19.3	46.0
1.202000	26.7	9.000	Off	L1	9.8	19.3	46.0
1.224000	26.5	9.000	Off	L1	9.8	19.5	46.0
8.546000	21.2	9.000	Off	L1	10.2	28.8	50.0
8.618000	20.5	9.000	Off	L1	10.2	29.5	50.0
8.702000	21.6	9.000	Off	L1	10.2	28.4	50.0
8.856000	20.5	9.000	Off	L1	10.2	29.5	50.0
9.338000	16.7	9.000	Off	L1	10.2	33.3	50.0
12.504000	19.0	9.000	Off	L1	10.3	31.0	50.0

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**Conducted Emissions (Line 2)**

BT LE N

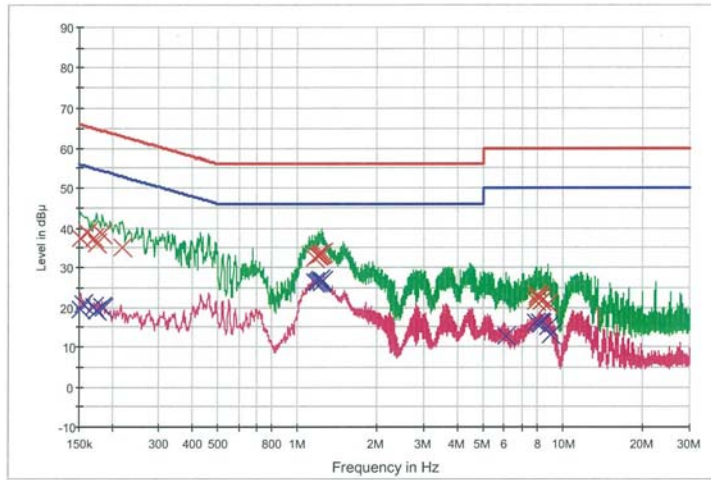
1 / 2

**HCT TEST Report**

**Common Information**

EUT: SM-A6060  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT LE N

FCC CLASS B\_Exten Cable



— FCC CLASS B\_OP      — FCC CLASS B\_AV      — Preview Result 1-PK+  
 — Preview Result 2-AVG      × Final Result 1-QPK      × Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	37.3	9.000	Off	N	9.8	28.6	65.9
0.160000	38.9	9.000	Off	N	9.8	26.5	65.5
0.170000	37.5	9.000	Off	N	9.8	27.5	65.0
0.174000	36.0	9.000	Off	N	9.8	28.8	64.8
0.184000	38.6	9.000	Off	N	9.8	25.7	64.3
0.218000	34.9	9.000	Off	N	9.9	28.0	62.9
1.160000	32.5	9.000	Off	N	10.0	23.5	56.0
1.186000	33.0	9.000	Off	N	10.0	23.0	56.0
1.204000	33.0	9.000	Off	N	10.0	23.0	56.0
1.222000	33.4	9.000	Off	N	10.0	22.6	56.0
1.232000	33.5	9.000	Off	N	10.0	22.5	56.0
1.244000	33.6	9.000	Off	N	10.0	22.4	56.0
7.954000	21.6	9.000	Off	N	10.4	38.4	60.0
7.986000	22.7	9.000	Off	N	10.4	37.3	60.0
8.030000	23.1	9.000	Off	N	10.4	36.9	60.0
8.186000	22.5	9.000	Off	N	10.4	37.5	60.0
8.280000	21.6	9.000	Off	N	10.4	38.4	60.0
8.742000	20.9	9.000	Off	N	10.4	39.1	60.0

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BT LE N

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**Final Result 2**

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	19.7	9.000	Off	N	9.8	36.2	55.9
0.156000	21.0	9.000	Off	N	9.8	34.7	55.7
0.170000	20.1	9.000	Off	N	9.8	34.9	55.0
0.174000	19.1	9.000	Off	N	9.8	35.7	54.8
0.182000	20.2	9.000	Off	N	9.8	34.2	54.4
0.186000	19.7	9.000	Off	N	9.8	34.5	54.2
1.160000	26.1	9.000	Off	N	10.0	19.9	46.0
1.186000	26.3	9.000	Off	N	10.0	19.7	46.0
1.204000	26.7	9.000	Off	N	10.0	19.3	46.0
1.220000	26.8	9.000	Off	N	10.0	19.2	46.0
1.232000	26.3	9.000	Off	N	10.0	19.7	46.0
1.246000	26.6	9.000	Off	N	10.0	19.4	46.0
6.090000	12.6	9.000	Off	N	10.3	37.4	50.0
7.954000	16.1	9.000	Off	N	10.4	33.9	50.0
8.178000	16.2	9.000	Off	N	10.4	33.8	50.0
8.280000	15.9	9.000	Off	N	10.4	34.1	50.0
8.742000	15.0	9.000	Off	N	10.4	35.0	50.0
9.022000	13.1	9.000	Off	N	10.4	36.9	50.0

2019-02-14

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## 10. LIST OF TEST EQUIPMENT

### Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/12/2018	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/27/2018	Annual	100033
ESPACE	SU-642 / Temperature Chamber	03/30/2018	Annual	0093008124
Agilent	N9020A / Signal Analyzer	06/08/2018	Annual	MY51110085
Agilent	N9020A / Signal Analyzer	06/08/2018	Annual	MY52090906
Agilent	N9030A / Signal Analyzer	01/10/2019	Annual	MY49431210
Rohde & Schwarz	OSP 120 / Power Measurement Set	07/26/2018	Annual	101231
Agilent	N1911A / Power Meter	04/16/2018	Annual	MY45100523
Agilent	N1921A / Power Sensor	04/16/2018	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/20/2018	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/07/2018	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/26/2018	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/10/2018	Annual	07560
Chang Woo Inc.	18N-20dB / Attenuator(20 dB)	05/09/2018	Annual	8
Rohde & Schwarz	EMC32 / Software	N/A	N/A	N/A
HCT CO., LTD.	FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	N/A	N/A

### **Note:**

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

**Radiated Test**

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	HFH2-Z2 / Loop Antenna	06/15/2017	Biennial	100341
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
Schwarzbeck	VULB 9160 / TRILOG Antenna	08/09/2018	Biennial	9160-3368
Schwarzbeck	BBHA 9120D / Horn Antenna	05/02/2017	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	09/03/2018	Annual	100688
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/28/2018	Annual	101068-SZ
Agilent	N9020A / Signal Analyzer	06/08/2018	Annual	MY51110085
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	06/07/2018	Annual	8
Wainwright Instruments	WHKX7.0/18G-8SS / High Pass Filter	05/09/2018	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/29/2018	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/03/2019	Annual	2
Api tech.	18B-03 / Attenuator (3 dB)	06/07/2018	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	07/17/2018	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	07/10/2018	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/10/2018	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	01/03/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/29/2018	Annual	25956

**Note:**

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

## 11. ANNEX A\_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-1903-FC009-P
2	HCT-RF-1903-FC010-P
3	HCT-RF-1903-FC011-P
4	HCT-RF-1903-FC012-P
5	HCT-RF-1903-FC013-P
6	HCT-RF-1903-FC014-P
7	HCT-RF-1903-FC015-P