

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	55.160M	52.9	-32.1 +0.1	+7.7 +0.2	+5.9	+0.7	+0.0	35.4	82.3	-46.9	Vert
2	60.090M	53.5	-32.0 +0.1	+6.8 +0.2	+5.9	+0.7	+0.0	35.2	82.3	-47.1	Vert
3	106.160M	43.9	-32.0 +0.1	+10.9 +0.3	+5.9	+0.9	+0.0	30.0	82.3	-52.3	Horiz
4	66.550M	48.7	-32.0 +0.1	+6.3 +0.2	+5.9	+0.7	+0.0	29.9	82.3	-52.4	Vert
5	193.200M	36.9	-31.9 +0.2	+9.2 +0.5	+5.9	+1.3	+0.0	22.1	82.3	-60.2	Horiz
6	119.080M	34.2	-32.0 +0.1	+11.8 +0.3	+5.9	+1.0	+0.0	21.3	82.3	-61.0	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:15:03
 Tested By: Hieu Song Nguyenpham Sequence#: 3
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

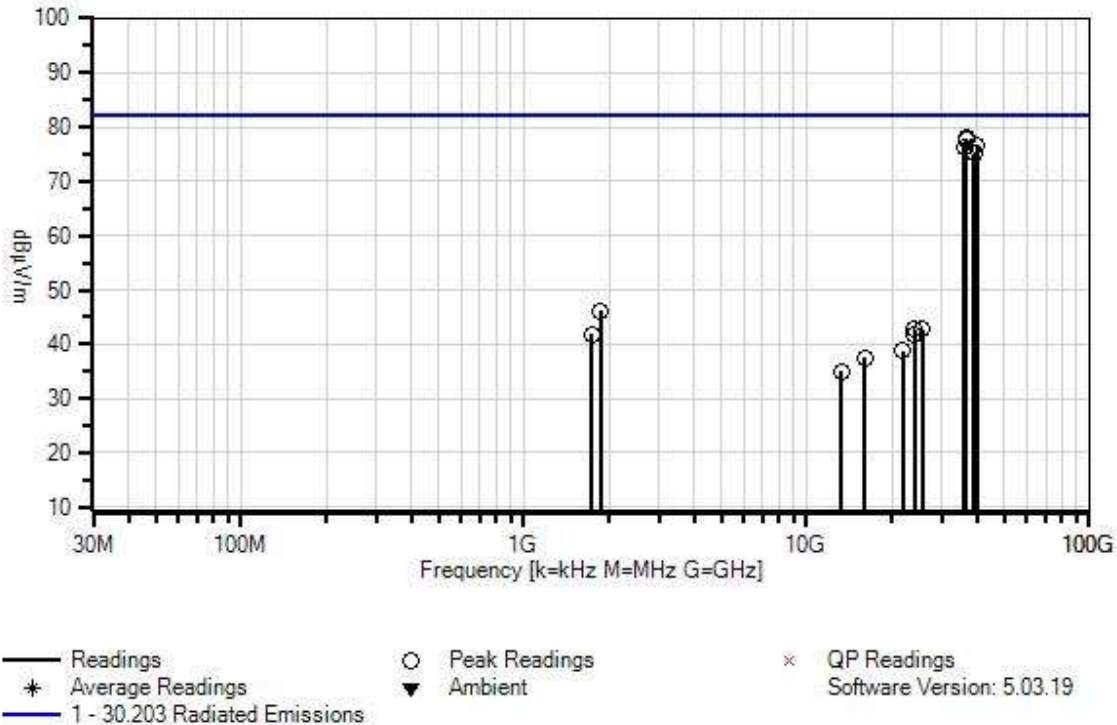
Radiated Emission
 Frequency Range: 26.5GHz to 40GHz

 Temperature: 23.7°C
 Humidity: 48 %
 Atmospheric Pressure: 101.3Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-H out
QPSK-Middle Channel-100MHz Channel Bandwidth

Cellphone-Mate, Inc W/O#: 104339 Sequence#: 3 Date: 9/2/2020
30.203 Radiated Emissions Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	ANP00930	Cable	various	1/9/2020	1/9/2022
T2	ANP06899	Cable	32022-29094K-29094K-72TC	1/7/2020	1/7/2022
T3	AN03619	Cable	OKOCQoCQ177.2	11/5/2019	11/5/2021
T4	AN01414	Horn Antenna-ANSI C63.5 3m	84125-80008 RA28-K-F-4B-C	10/8/2019	10/8/2021
T5	AN02810	Preamp	83051A	7/16/2019	7/16/2021
	AN02668	Spectrum Analyzer	E4446A	12/17/2019	12/17/2020
T6	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	8/15/2019	8/15/2021
T7	ANP00929	Cable	various	1/9/2020	1/9/2022
T8	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	8/15/2019	8/15/2021
T9	ANP00928	Cable	various	1/9/2020	1/9/2022
T10	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2020	1/9/2022
T11	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020
T12	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6	T7	T8	Table	dBμV/m	dBμV/m	dB	Ant
			T9	T10	T11	T12					
1	36693.470 M	42.5	+2.7 -29.3 +0.0	+6.0 +0.0 +0.0	+11.5 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	78.0	82.3	-4.3	Vert
2	36579.951 M	42.2	+2.7 -29.2 +0.0	+6.0 +0.0 +0.0	+11.5 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	77.8	82.3	-4.5	Vert
3	36672.186 M	42.2	+2.7 -29.3 +0.0	+6.0 +0.0 +0.0	+11.5 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	77.7	82.3	-4.6	Horiz
4	39886.292 M	38.5	+3.8 -28.9 +0.0	+6.6 +0.0 +0.0	+12.1 +0.0 +0.0	+44.7 +0.0 +0.0	+0.0	76.8	82.3	-5.5	Horiz
5	35926.847 M	40.7	+2.9 -29.1 +0.0	+5.8 +0.0 +0.0	+11.5 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	76.3	82.3	-6.0	Horiz
6	39006.546 M	38.8	+2.7 -29.2 +0.0	+6.4 +0.0 +0.0	+11.9 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	75.1	82.3	-7.2	Vert
7	1874.000M	44.8	+0.0 -28.4 +0.0	+0.0 +0.0 +1.1	+0.0 +0.0 +2.2	+0.0 +0.0 +26.4	+0.0	46.1	82.3	-36.2	Horiz
8	24128.500 M	42.2	+0.0 +0.0 +0.0	+4.5 -16.1 +0.0	+9.1 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	42.8	82.3	-39.5	Vert
9	25539.500 M	40.6	+0.0 +0.0 +0.0	+4.7 -15.1 +0.0	+9.4 +3.2 +0.0	+0.0 +0.0 +0.0	+0.0	42.8	82.3	-39.5	Horiz
10	1739.000M	41.8	+0.0 -28.8 +0.0	+0.0 +0.0 +1.0	+0.0 +0.0 +2.2	+0.0 +0.0 +25.7	+0.0	41.9	82.3	-40.4	Vert
11	24128.500 M	41.1	+0.0 +0.0 +0.0	+4.5 -16.1 +0.0	+9.1 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	41.7	82.3	-40.6	Horiz
12	21850.500 M	39.0	+0.0 +0.0 +0.0	+4.3 -16.2 +0.0	+8.6 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	38.8	82.3	-43.5	Vert
13	16086.000 M	40.5	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.2 +0.0 +0.0	+0.0 -14.5 +0.0	+0.0	37.5	82.3	-44.8	Vert
14	13284.000 M	39.1	+0.0 +0.0 +0.8	+3.3 +0.0 +0.0	+6.6 +0.0 +0.0	+0.0 -14.8 +0.0	+0.0	35.0	82.3	-47.3	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 15:05:58
 Tested By: Hieu Song Nguyenpham Sequence#: 23
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-H out
QPSK-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	50.570M	53.0	-32.1 +0.1	+8.6 +0.2	+5.9	+0.6	+0.0	36.3	82.3	-46.0	Vert
2	59.920M	52.1	-32.0 +0.1	+6.8 +0.2	+5.9	+0.7	+0.0	33.8	82.3	-48.5	Vert
3	66.550M	49.0	-32.0 +0.1	+6.3 +0.2	+5.9	+0.7	+0.0	30.2	82.3	-52.1	Vert
4	30.340M	33.8	-32.1 +0.0	+18.5 +0.2	+5.9	+0.5	+0.0	26.8	82.3	-55.5	Horiz
5	106.160M	40.4	-32.0 +0.1	+10.9 +0.3	+5.9	+0.9	+0.0	26.5	82.3	-55.8	Horiz
6	92.220M	38.1	-32.0 +0.1	+9.6 +0.3	+5.9	+0.8	+0.0	22.8	82.3	-59.5	Horiz

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:17:21
 Tested By: Hieu Song Nguyenpham Sequence#: 4
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 23.7°C
 Humidity: 48 %
 Atmospheric Pressure: 101.3Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-H out
QPSK-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	T5	T6	T7	T8	Table	dB μ V/m	dB μ V/m	dB	Ant
			T9	T10	T11	T12					
1	35978.200 M	43.5	+2.9 -29.1 +0.0	+5.9 +0.0 +0.0	+11.5 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	79.2	82.3	-3.1	Horiz
2	34697.200 M	43.4	+2.5 -28.6 +0.0	+5.8 +0.0 +0.0	+11.3 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	78.7	82.3	-3.6	Horiz
3	33101.500 M	43.0	+2.8 -27.8 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	78.7	82.3	-3.6	Vert
4	38322.400 M	42.5	+2.6 -29.3 +0.0	+6.2 +0.0 +0.0	+11.9 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	78.5	82.3	-3.8	Horiz
5	36624.502 M	42.2	+2.7 -29.2 +0.0	+6.0 +0.0 +0.0	+11.5 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	77.8	82.3	-4.5	Vert
6	33122.600 M	41.3	+2.8 -27.8 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	77.0	82.3	-5.3	Horiz
7	31144.000 M	41.6	+3.1 -29.1 +0.0	+5.4 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	75.4	82.3	-6.9	Vert
8	4528.000M	38.1	+0.0 -27.6 +0.0	+0.0 +0.0 +32.5	+0.0 +0.0 +1.8	+0.0 +0.0 +3.6	+0.0	48.4	82.3	-33.9	Horiz
9	1865.000M	45.4	+0.0 -28.5 +0.0	+0.0 +0.0 +26.4	+0.0 +0.0 +1.1	+0.0 +0.0 +2.2	+0.0	46.6	82.3	-35.7	Vert
10	23329.500 M	42.4	+0.0 +0.0 +0.0	+4.5 -16.5 +0.0	+9.0 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	42.5	82.3	-39.8	Horiz
11	16656.000 M	41.0	+0.0 +0.0 +0.8	+3.7 +0.0 +0.0	+7.4 +0.0 +0.0	+0.0 -14.0 +0.0	+0.0	38.9	82.3	-43.4	Vert
12	16458.000 M	40.5	+0.0 +0.0 +0.8	+3.6 +0.0 +0.0	+7.3 +0.0 +0.0	+0.0 -14.3 +0.0	+0.0	37.9	82.3	-44.4	Vert
13	19054.000 M	37.6	+0.0 +0.0 +0.0	+4.0 -15.3 +0.0	+8.0 +3.4 +0.0	+0.0 +0.0 +0.0	+0.0	37.7	82.3	-44.6	Vert
14	13266.000 M	40.0	+0.0 +0.0 +0.8	+3.3 +0.0 +0.0	+6.6 +0.0 +0.0	+0.0 -14.8 +0.0	+0.0	35.9	82.3	-46.4	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 14:50:35
 Tested By: Hieu Song Nguyenpham Sequence#: 20
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-V out
Pi/2 BPSK-Middle Channel-100MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	56.261M	56.9	-32.0 +0.1	+7.5 +0.2	+5.9	+0.7	+0.0	39.3	82.3	-43.0	Vert
2	60.006M	56.1	-32.0 +0.1	+6.8 +0.2	+5.9	+0.7	+0.0	37.8	82.3	-44.5	Vert
3	30.042M	42.5	-32.1 +0.0	+18.7 +0.2	+5.9	+0.5	+0.0	35.7	82.3	-46.6	Vert
4	51.126M	51.6	-32.1 +0.1	+8.5 +0.2	+5.9	+0.6	+0.0	34.8	82.3	-47.5	Vert
5	122.645M	40.8	-32.0 +0.1	+11.9 +0.3	+5.9	+1.0	+0.0	28.0	82.3	-54.3	Horiz
6	116.476M	39.3	-32.0 +0.1	+11.7 +0.3	+5.9	+1.0	+0.0	26.3	82.3	-56.0	Horiz
7	97.668M	36.7	-32.0 +0.1	+10.2 +0.3	+5.9	+0.9	+0.0	22.1	82.3	-60.2	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:19:23
 Tested By: Hieu Song Nguyenpham Sequence#: 5
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

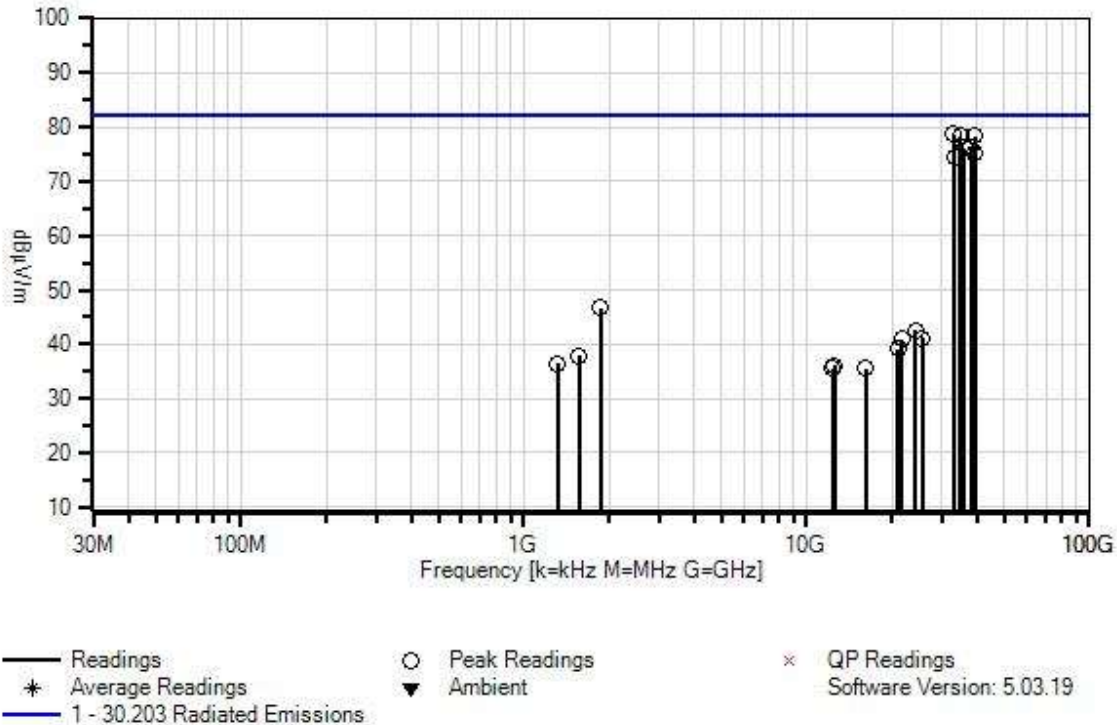
Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 23.7°C
 Humidity: 48 %
 Atmospheric Pressure: 101.3Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-V out
Pi/2 BPSK-Middle Channel-400MHz Channel Bandwidth

Cellphone-Mate, Inc W/O#: 104339 Sequence#: 5 Date: 9/2/2020
 30.203 Radiated Emissions Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	ANP00930	Cable	various	1/9/2020	1/9/2022
T2	ANP06899	Cable	32022-29094K-29094K-72TC	1/7/2020	1/7/2022
T3	AN03619	Cable	OKOCQoCQ177.2	11/5/2019	11/5/2021
T4	AN01414	Horn Antenna-ANSI C63.5 3m	84125-80008 RA28-K-F-4B-C	10/8/2019	10/8/2021
T5	AN02810	Preamp	83051A	7/16/2019	7/16/2021
	AN02668	Spectrum Analyzer	E4446A	12/17/2019	12/17/2020
T6	ANP00929	Cable	various	1/9/2020	1/9/2022
T7	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	8/15/2019	8/15/2021
T8	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	8/15/2019	8/15/2021
T9	ANP00928	Cable	various	1/9/2020	1/9/2022
T10	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T11	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2020	1/9/2022
T12	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1	T2	T3	T4	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
			T5	T6	T7	T8					
			T9	T10	T11	T12					
			dB	dB	dB	dB					
1	33066.900 M	43.0	+2.8 -27.8 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	78.7	82.3	-3.6	Vert
2	39410.780 M	41.5	+2.9 -29.1 +0.0	+6.5 +0.0 +0.0	+12.0 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	78.4	82.3	-3.9	Horiz
3	34837.300 M	43.0	+2.5 -28.7 +0.0	+5.9 +0.0 +0.0	+11.3 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	78.3	82.3	-4.0	Vert
4	38121.600 M	40.4	+2.6 -29.3 +0.0	+6.1 +0.0 +0.0	+11.9 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	76.3	82.3	-6.0	Vert
5	35944.630 M	40.6	+2.9 -29.1 +0.0	+5.8 +0.0 +0.0	+11.5 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	76.2	82.3	-6.1	Horiz
6	39417.200 M	38.3	+2.9 -29.1 +0.0	+6.5 +0.0 +0.0	+12.0 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	75.2	82.3	-7.1	Horiz
7	33273.268 M	38.6	+2.7 -27.7 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	74.3	82.3	-8.0	Horiz
8	1865.000M	45.4	+0.0 -28.5 +0.0	+0.0 +0.0 +26.4	+0.0 +0.0 +1.1	+0.0 +0.0 +2.2	+0.0	46.6	82.3	-35.7	Horiz
9	24256.000 M	41.8	+0.0 +0.0 +0.0	+4.5 +3.1 +0.0	+9.1 -16.0 +0.0	+0.0 +0.0 +0.0	+0.0	42.5	82.3	-39.8	Vert
10	25658.500 M	38.8	+0.0 +0.0 +0.0	+4.7 +3.2 +0.0	+9.4 -15.0 +0.0	+0.0 +0.0 +0.0	+0.0	41.1	82.3	-41.2	Vert
11	21672.000 M	41.1	+0.0 +0.0 +0.0	+4.3 +3.1 +0.0	+8.6 -16.2 +0.0	+0.0 +0.0 +0.0	+0.0	40.9	82.3	-41.4	Horiz
12	20966.500 M	39.4	+0.0 +0.0 +0.0	+4.2 +3.2 +0.0	+8.4 -16.0 +0.0	+0.0 +0.0 +0.0	+0.0	39.2	82.3	-43.1	Vert
13	1565.000M	38.9	+0.0 -28.9 +0.0	+0.0 +0.0 +24.8	+0.0 +0.0 +1.0	+0.0 +0.0 +2.0	+0.0	37.8	82.3	-44.5	Vert
14	1315.000M	37.7	+0.0 -28.4 +0.0	+0.0 +0.0 +24.3	+0.0 +0.0 +0.9	+0.0 +0.0 +1.9	+0.0	36.4	82.3	-45.9	Horiz
15	12516.000 M	40.4	+0.0 +0.0 +0.8	+3.1 +0.0 +0.0	+6.3 +0.0 +0.0	+0.0 -14.5 +0.0	+0.0	36.1	82.3	-46.2	Vert

16	12312.000	39.4	+0.0	+3.1	+6.3	+0.0	+0.0	35.6	82.3	-46.7	Vert
	M		+0.0	+0.0	+0.0	-14.0					
			+0.8	+0.0	+0.0	+0.0					
17	16236.000	38.5	+0.0	+3.6	+7.2	+0.0	+0.0	35.6	82.3	-46.7	Horiz
	M		+0.0	+0.0	+0.0	-14.5					
			+0.8	+0.0	+0.0	+0.0					



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 14:55:24
 Tested By: Hieu Song Nguyenpham Sequence#: 21
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-V out
Pi/2 BPSK-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	55.330M	55.3	-32.1 +0.1	+7.6 +0.2	+5.9	+0.7	+0.0	37.7	82.3	-44.6	Vert
2	60.090M	53.9	-32.0 +0.1	+6.8 +0.2	+5.9	+0.7	+0.0	35.6	82.3	-46.7	Vert
3	92.390M	44.5	-32.0 +0.1	+9.6 +0.3	+5.9	+0.8	+0.0	29.2	82.3	-53.1	Vert
4	144.920M	40.3	-32.0 +0.2	+11.6 +0.4	+5.9	+1.1	+0.0	27.5	82.3	-54.8	Horiz
5	106.160M	40.8	-32.0 +0.1	+10.9 +0.3	+5.9	+0.9	+0.0	26.9	82.3	-55.4	Horiz
6	160.050M	37.7	-32.0 +0.2	+10.7 +0.4	+6.0	+1.2	+0.0	24.2	82.3	-58.1	Vert
7	66.550M	33.6	-32.0 +0.1	+6.3 +0.2	+5.9	+0.7	+0.0	14.8	82.3	-67.5	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:22:03
 Tested By: Hieu Song Nguyenpham Sequence#: 6
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for UL-V out
Pi/2 BPSK-Middle Channel-100MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB μ V	T5	T6	T7	T8	Table	dB μ V/m	dB μ V/m	dB	Ant
			T9	T10	T11	T12					
1	35728.400 M	44.6	+2.7 -29.1 +0.0	+5.8 +0.0 +0.0	+11.4 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	79.9	82.3	-2.4	Horiz
2	37669.893 M	40.1	+2.6 -29.4 +0.0	+6.0 +0.0 +0.0	+11.8 +0.0 +0.0	+44.7 +0.0 +0.0	+0.0	75.8	82.3	-6.5	Vert
3	28236.700 M	42.9	+3.5 -30.3 +0.0	+5.0 +0.0 +0.0	+9.9 +0.0 +0.0	+43.8 +0.0 +0.0	+0.0	74.8	82.3	-7.5	Horiz
4	27140.600 M	43.0	+3.8 -30.8 +0.0	+5.0 +0.0 +0.0	+9.7 +0.0 +0.0	+43.7 +0.0 +0.0	+0.0	74.4	82.3	-7.9	Vert
5	33190.559 M	38.2	+2.8 -27.7 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.2 +0.0 +0.0	+0.0	73.9	82.3	-8.4	Horiz
6	28751.200 M	39.6	+3.4 -30.3 +0.0	+5.0 +0.0 +0.0	+10.0 +0.0 +0.0	+43.9 +0.0 +0.0	+0.0	71.6	82.3	-10.7	Vert
7	2480.000M	43.2	+0.0 -26.8 +0.0	+0.0 +0.0 +28.9	+0.0 +0.0 +1.3	+0.0 +0.0 +2.6	+0.0	49.2	82.3	-33.1	Horiz
8	3395.000M	38.5	+0.0 -25.9 +0.0	+0.0 +0.0 +30.5	+0.0 +0.0 +1.5	+0.0 +0.0 +3.1	+0.0	47.7	82.3	-34.6	Vert
9	24366.500 M	40.1	+0.0 +0.0 +0.0	+4.5 -15.9 +0.0	+9.1 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	40.9	82.3	-41.4	Vert
10	20227.000 M	39.7	+0.0 +0.0 +0.0	+4.1 -15.7 +0.0	+8.2 +3.3 +0.0	+0.0 +0.0 +0.0	+0.0	39.6	82.3	-42.7	Horiz
11	21680.500 M	39.7	+0.0 +0.0 +0.0	+4.3 -16.2 +0.0	+8.6 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	39.5	82.3	-42.8	Vert
12	17034.000 M	40.2	+0.0 +0.0 +0.8	+3.7 +0.0 +0.0	+7.5 +0.0 +0.0	+0.0 -12.8 +0.0	+0.0	39.4	82.3	-42.9	Horiz
13	15768.000 M	41.5	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.2 +0.0 +0.0	+0.0 -14.2 +0.0	+0.0	38.8	82.3	-43.5	Vert
14	1340.000M	38.4	+0.0 -28.5 +0.0	+0.0 +0.0 +24.3	+0.0 +0.0 +0.9	+0.0 +0.0 +1.9	+0.0	37.0	82.3	-45.3	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 15:16:03
 Tested By: Hieu Song Nguyenpham Sequence#: 24
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-H out
64QAM-Middle Channel-100MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	55.650M	55.5	-32.1 +0.1	+7.6 +0.2	+5.9	+0.7	+0.0	37.9	82.3	-44.4	Vert
2	33.510M	43.8	-32.1 +0.0	+17.2 +0.2	+5.9	+0.5	+0.0	35.5	82.3	-46.8	Vert
3	159.870M	35.0	-32.0 +0.2	+10.7 +0.4	+6.0	+1.2	+0.0	21.5	82.3	-60.8	Vert
4	127.470M	32.9	-32.0 +0.1	+11.9 +0.4	+5.9	+1.0	+0.0	20.2	82.3	-62.1	Horiz
5	56.730M	37.8	-32.0 +0.1	+7.4 +0.2	+5.9	+0.7	+0.0	20.1	82.3	-62.2	Horiz
6	92.370M	33.9	-32.0 +0.1	+9.6 +0.3	+5.9	+0.8	+0.0	18.6	82.3	-63.7	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:39:13
 Tested By: Hieu Song Nguyenpham Sequence#: 11
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

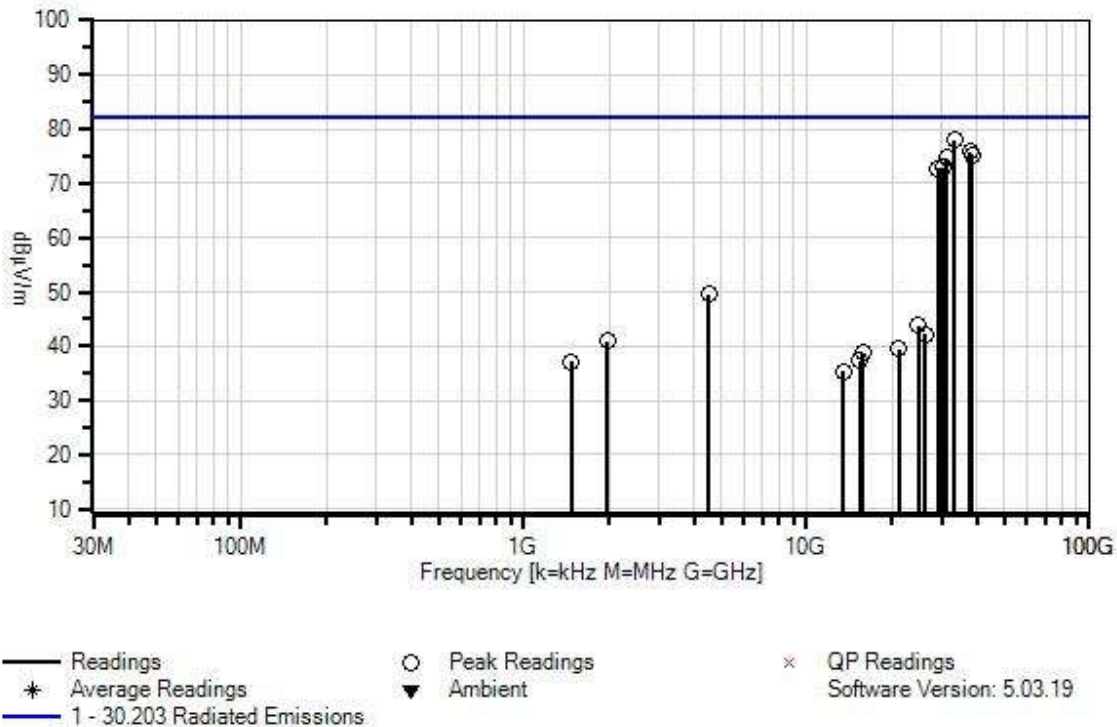
Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-H out
256QAM-Middle Channel-400MHz Channel Bandwidth

Cellphone-Mate, Inc W/O#: 104339 Sequence#: 11 Date: 9/2/2020
 30.203 Radiated Emissions Test Distance: 3 Meters Vert



Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	ANP00930	Cable	various	1/9/2020	1/9/2022
T2	ANP06899	Cable	32022-29094K-29094K-72TC	1/7/2020	1/7/2022
T3	AN03619	Cable	OKOCQoCQ177.2	11/5/2019	11/5/2021
T4	AN01414	Horn Antenna-ANSI C63.5 3m	84125-80008 RA28-K-F-4B-C	10/8/2019	10/8/2021
T5	AN02810	Preamp	83051A	7/16/2019	7/16/2021
	AN02668	Spectrum Analyzer	E4446A	12/17/2019	12/17/2020
T6	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	8/15/2019	8/15/2021
T7	ANP00929	Cable	various	1/9/2020	1/9/2022
T8	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	8/15/2019	8/15/2021
T9	ANP00928	Cable	various	1/9/2020	1/9/2022
T10	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T11	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2020	1/9/2022
T12	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1	T2	T3	T4	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			T5	T6	T7	T8					
			T9	T10	T11	T12					
			dB	dB	dB	dB					
1	33320.000 M	42.1	+2.7 -27.7 +0.0	+5.6 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	77.9	82.3	-4.4	Vert
2	37719.337 M	40.1	+2.6 -29.4 +0.0	+6.0 +0.0 +0.0	+11.8 +0.0 +0.0	+44.7 +0.0 +0.0	+0.0	75.8	82.3	-6.5	Vert
3	38360.432 M	39.4	+2.6 -29.3 +0.0	+6.2 +0.0 +0.0	+11.9 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	75.3	82.3	-7.0	Horiz
4	31175.000 M	40.8	+3.1 -29.0 +0.0	+5.4 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	74.7	82.3	-7.6	Horiz
5	30312.000 M	38.8	+3.2 -28.7 +0.0	+5.3 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	73.0	82.3	-9.3	Vert
6	29134.500 M	40.3	+3.4 -29.9 +0.0	+5.0 +0.0 +0.0	+10.1 +0.0 +0.0	+43.9 +0.0 +0.0	+0.0	72.8	82.3	-9.5	Horiz
7	4510.000M	39.4	+0.0 -27.7 +0.0	+0.0 +0.0 +32.4	+0.0 +0.0 +1.8	+0.0 +0.0 +3.6	+0.0	49.5	82.3	-32.8	Horiz
8	24893.500 M	42.3	+0.0 +0.0 +0.0	+4.7 -15.6 +0.0	+9.3 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	43.8	82.3	-38.5	Horiz
9	26236.500 M	39.1	+0.0 +0.0 +0.0	+4.8 -14.6 +0.0	+9.5 +3.3 +0.0	+0.0 +0.0 +0.0	+0.0	42.1	82.3	-40.2	Horiz
10	1980.000M	38.6	+0.0 -28.0 +0.0	+0.0 +0.0 +26.9	+0.0 +0.0 +1.2	+0.0 +0.0 +2.3	+0.0	41.0	82.3	-41.3	Vert
11	21272.500 M	39.6	+0.0 +0.0 +0.0	+4.3 -16.1 +0.0	+8.5 +3.2 +0.0	+0.0 +0.0 +0.0	+0.0	39.5	82.3	-42.8	Vert
12	15768.000 M	41.5	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.2 +0.0 +0.0	+0.0 -14.2 +0.0	+0.0	38.8	82.3	-43.5	Horiz
13	15414.000 M	39.8	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.1 +0.0 +0.0	+0.0 -13.8 +0.0	+0.0	37.4	82.3	-44.9	Vert
14	1475.000M	38.6	+0.0 -28.8 +0.0	+0.0 +0.0 +24.4	+0.0 +0.0 +1.0	+0.0 +0.0 +2.0	+0.0	37.2	82.3	-45.1	Vert
15	13434.000 M	39.3	+0.0 +0.0 +0.8	+3.3 +0.0 +0.0	+6.6 +0.0 +0.0	+0.0 -14.6 +0.0	+0.0	35.4	82.3	-46.9	Vert



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 15:19:40
 Tested By: Hieu Song Nguyenpham Sequence#: 25
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-H out
QPSK-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	56.360M	55.8	-32.0 +0.1	+7.5 +0.2	+5.9	+0.7	+0.0	38.2	82.3	-44.1	Vert
2	49.250M	49.0	-32.1 +0.1	+9.0 +0.2	+5.9	+0.6	+0.0	32.7	82.3	-49.6	Vert
3	79.970M	45.8	-32.0 +0.1	+7.7 +0.3	+5.9	+0.8	+0.0	28.6	82.3	-53.7	Vert
4	92.270M	42.3	-32.0 +0.1	+9.6 +0.3	+5.9	+0.8	+0.0	27.0	82.3	-55.3	Vert
5	144.990M	36.5	-32.0 +0.2	+11.6 +0.4	+5.9	+1.1	+0.0	23.7	82.3	-58.6	Vert
6	160.030M	36.6	-32.0 +0.2	+10.7 +0.4	+6.0	+1.2	+0.0	23.1	82.3	-59.2	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:43:25
 Tested By: Hieu Song Nguyenpham Sequence#: 12
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-H out
64QAM-Middle Channel-100MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1	T2	T3	T4	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			T5	T6	T7	T8					
			dB	dB	dB	dB					
1	33103.000 M	44.3	+2.8 -27.8 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	80.0	82.3	-2.3	Vert
2	38967.000 M	43.5	+2.7 -29.2 +0.0	+6.4 +0.0 +0.0	+11.9 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	79.8	82.3	-2.5	Vert
3	36244.485 M	43.3	+2.8 -29.1 +0.0	+5.9 +0.0 +0.0	+11.5 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	78.9	82.3	-3.4	Vert
4	32419.000 M	42.6	+3.0 -27.8 +0.0	+5.4 +0.0 +0.0	+10.7 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	78.2	82.3	-4.1	Horiz
5	30834.000 M	40.8	+3.1 -29.1 +0.0	+5.4 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	74.6	82.3	-7.7	Horiz
6	29195.000 M	40.8	+3.4 -29.8 +0.0	+5.0 +0.0 +0.0	+10.1 +0.0 +0.0	+43.9 +0.0 +0.0	+0.0	73.4	82.3	-8.9	Horiz
7	26665.000 M	40.8	+4.0 -30.7 +0.0	+4.9 +0.0 +0.0	+9.6 +0.0 +0.0	+43.6 +0.0 +0.0	+0.0	72.2	82.3	-10.1	Horiz
8	1900.000M	44.5	+0.0 -28.3 +0.0	+0.0 +0.0 +26.5	+0.0 +0.0 +1.1	+0.0 +0.0 +2.3	+0.0	46.1	82.3	-36.2	Vert
9	1900.000M	43.3	+0.0 -28.3 +0.0	+0.0 +0.0 +26.5	+0.0 +0.0 +1.1	+0.0 +0.0 +2.3	+0.0	44.9	82.3	-37.4	Horiz
10	24893.500 M	42.3	+0.0 +0.0 +0.0	+4.7 -15.6 +0.0	+9.3 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	43.8	82.3	-38.5	Horiz
11	22394.500 M	40.0	+0.0 +0.0 +0.0	+4.3 -16.3 +0.0	+8.7 +3.0 +0.0	+0.0 +0.0 +0.0	+0.0	39.7	82.3	-42.6	Vert
12	15768.000 M	41.5	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.2 +0.0 +0.0	+0.0 -14.2 +0.0	+0.0	38.8	82.3	-43.5	Horiz
13	16794.000 M	40.4	+0.0 +0.0 +0.8	+3.7 +0.0 +0.0	+7.4 +0.0 +0.0	+0.0 -13.6 +0.0	+0.0	38.7	82.3	-43.6	Horiz
14	14790.000 M	40.1	+0.0 +0.0 +0.9	+3.4 +0.0 +0.0	+6.9 +0.0 +0.0	+0.0 -13.3 +0.0	+0.0	38.0	82.3	-44.3	Vert
15	1260.000M	38.6	+0.0 -28.3 +0.0	+0.0 +0.0 +24.3	+0.0 +0.0 +0.9	+0.0 +0.0 +1.8	+0.0	37.3	82.3	-45.0	Vert



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 15:26:42
 Tested By: Hieu Song Nguyenpham Sequence#: 26
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-V out
64QAM-Middle Channel-100MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	53.490M	55.9	-32.1 +0.1	+8.0 +0.2	+5.9	+0.7	+0.0	38.7	82.3	-43.6	Vert
2	79.950M	45.3	-32.0 +0.1	+7.7 +0.3	+5.9	+0.8	+0.0	28.1	82.3	-54.2	Vert
3	106.140M	36.5	-32.0 +0.1	+10.9 +0.3	+5.9	+0.9	+0.0	22.6	82.3	-59.7	Horiz
4	145.020M	34.4	-32.0 +0.2	+11.6 +0.4	+5.9	+1.1	+0.0	21.6	82.3	-60.7	Vert
5	159.870M	34.9	-32.0 +0.2	+10.7 +0.4	+6.0	+1.2	+0.0	21.4	82.3	-60.9	Horiz
6	92.370M	34.6	-32.0 +0.1	+9.6 +0.3	+5.9	+0.8	+0.0	19.3	82.3	-63.0	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:34:13
 Tested By: Hieu Song Nguyenpham Sequence#: 9
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

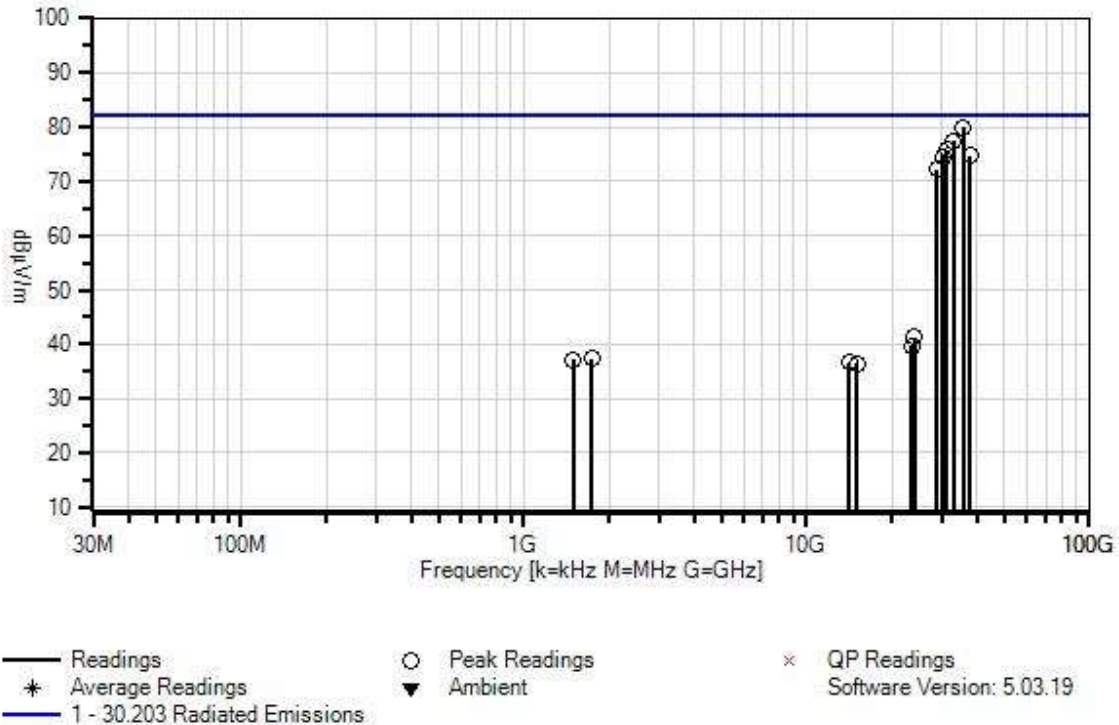
Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-V out
64QAM-Middle Channel-100MHz Channel Bandwidth

Cellphone-Mate, Inc W/O#: 104339 Sequence#: 9 Date: 9/2/2020
 30.203 Radiated Emissions Test Distance: 3 Meters Horiz



Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	ANP00930	Cable	various	1/9/2020	1/9/2022
T2	ANP06899	Cable	32022-29094K-29094K-72TC	1/7/2020	1/7/2022
T3	AN03619	Cable	OKOCQoCQ177.2	11/5/2019	11/5/2021
T4	AN01414	Horn Antenna-ANSI C63.5 3m	84125-80008 RA28-K-F-4B-C	10/8/2019	10/8/2021
T5	AN02810	Preamp	83051A	7/16/2019	7/16/2021
	AN02668	Spectrum Analyzer	E4446A	12/17/2019	12/17/2020
T6	AN02694	Horn Antenna	AMFW-5F-18002650-20-10P	8/15/2019	8/15/2021
T7	ANP00929	Cable	various	1/9/2020	1/9/2022
T8	AN02693	Active Horn Antenna	AMFW-5F-12001800-20-10P	8/15/2019	8/15/2021
T9	ANP00928	Cable	various	1/9/2020	1/9/2022
T10	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T11	AN03302	Cable	32026-29094K-29094K-72TC	1/9/2020	1/9/2022
T12	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Reading listed by margin.				Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB	T4 dB					
1	35747.500 M	44.6	+2.8 -29.1 +0.0	+5.8 +0.0 +0.0	+11.4 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	80.0	82.3	-2.3	Horiz
2	33074.500 M	41.7	+2.8 -27.8 +0.0	+5.5 +0.0 +0.0	+10.9 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	77.4	82.3	-4.9	Horiz
3	31192.000 M	42.0	+3.1 -29.0 +0.0	+5.4 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	75.9	82.3	-6.4	Vert
4	37969.811 M	38.9	+2.6 -29.3 +0.0	+6.1 +0.0 +0.0	+11.9 +0.0 +0.0	+44.6 +0.0 +0.0	+0.0	74.8	82.3	-7.5	Vert
5	30320.500 M	40.3	+3.2 -28.7 +0.0	+5.3 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	74.5	82.3	-7.8	Horiz
6	28971.775 M	40.1	+3.4 -30.1 +0.0	+5.0 +0.0 +0.0	+10.0 +0.0 +0.0	+43.9 +0.0 +0.0	+0.0	72.3	82.3	-10.0	Vert
7	24120.000 M	40.7	+0.0 +0.0 +0.0	+4.5 -16.1 +0.0	+9.1 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	41.3	82.3	-41.0	Horiz
8	23448.500 M	39.4	+0.0 +0.0 +0.0	+4.5 -16.4 +0.0	+9.0 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	39.6	82.3	-42.7	Vert
9	1735.000M	37.2	+0.0 -28.8 +0.0	+0.0 +0.0 +25.7	+0.0 +0.0 +1.0	+0.0 +0.0 +2.2	+0.0	37.3	82.3	-45.0	Horiz
10	1495.000M	38.5	+0.0 -28.8 +0.0	+0.0 +0.0 +24.4	+0.0 +0.0 +1.0	+0.0 +0.0 +2.0	+0.0	37.1	82.3	-45.2	Vert
11	14160.000 M	39.5	+0.0 +0.0 +0.8	+3.4 +0.0 +0.0	+6.8 +0.0 +0.0	+0.0 -13.9 +0.0	+0.0	36.6	82.3	-45.7	Horiz
12	15060.000 M	38.5	+0.0 +0.0 +0.9	+3.5 +0.0 +0.0	+7.0 +0.0 +0.0	+0.0 -13.4 +0.0	+0.0	36.5	82.3	-45.8	Vert



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/3/2020
 Test Type: **Radiated Scan** Time: 15:30:07
 Tested By: Hieu Song Nguyenpham Sequence#: 27
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 9kHz to 1GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

Note:
Worst Scenario for DL-V out
256QAM-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	56.190M	54.3	-32.0 +0.1	+7.5 +0.2	+5.9	+0.7	+0.0	36.7	82.3	-45.6	Vert
2	59.970M	53.9	-32.0 +0.1	+6.8 +0.2	+5.9	+0.7	+0.0	35.6	82.3	-46.7	Vert
3	79.950M	45.0	-32.0 +0.1	+7.7 +0.3	+5.9	+0.8	+0.0	27.8	82.3	-54.5	Vert
4	145.020M	38.5	-32.0 +0.2	+11.6 +0.4	+5.9	+1.1	+0.0	25.7	82.3	-56.6	Horiz
5	159.870M	36.4	-32.0 +0.2	+10.7 +0.4	+6.0	+1.2	+0.0	22.9	82.3	-59.4	Horiz
6	97.770M	35.1	-32.0 +0.1	+10.2 +0.3	+5.9	+0.9	+0.0	20.5	82.3	-61.8	Horiz



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 •
 Customer: **Cellphone-Mate, Inc.**
 Specification: **30.203 Radiated Emissions**
 Work Order #: **104339** Date: 9/2/2020
 Test Type: **Radiated Scan** Time: 15:36:10
 Tested By: Hieu Song Nguyenpham Sequence#: 10
 Software: EMITest 5.03.19

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emission
 Frequency Range: 1GHz to 40GHz

 Temperature: 22.7°C
 Humidity: 52 %
 Atmospheric Pressure: 101.7Pa
 Highest Generation Frequency: 28.3GHz
 Method: ANSI C63.26 Clause 5.5.2.3.1.

The EUT is operated and set up as intended. The output of antenna port is terminated by 50Ohm loads. The input of antenna port is connected to the signal generation which is outside of the chamber and sending the intended signal to Pre AGC Level. Other the ports are connected as normal.

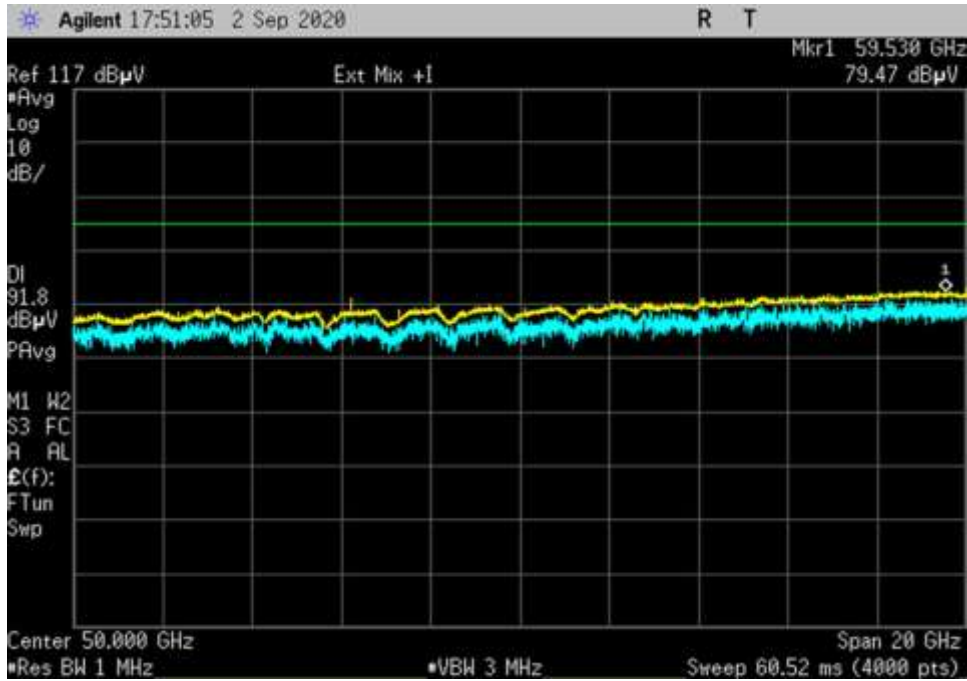
Note:
Worst Scenario for DL-V out
QPSK-Middle Channel-400MHz Channel Bandwidth

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

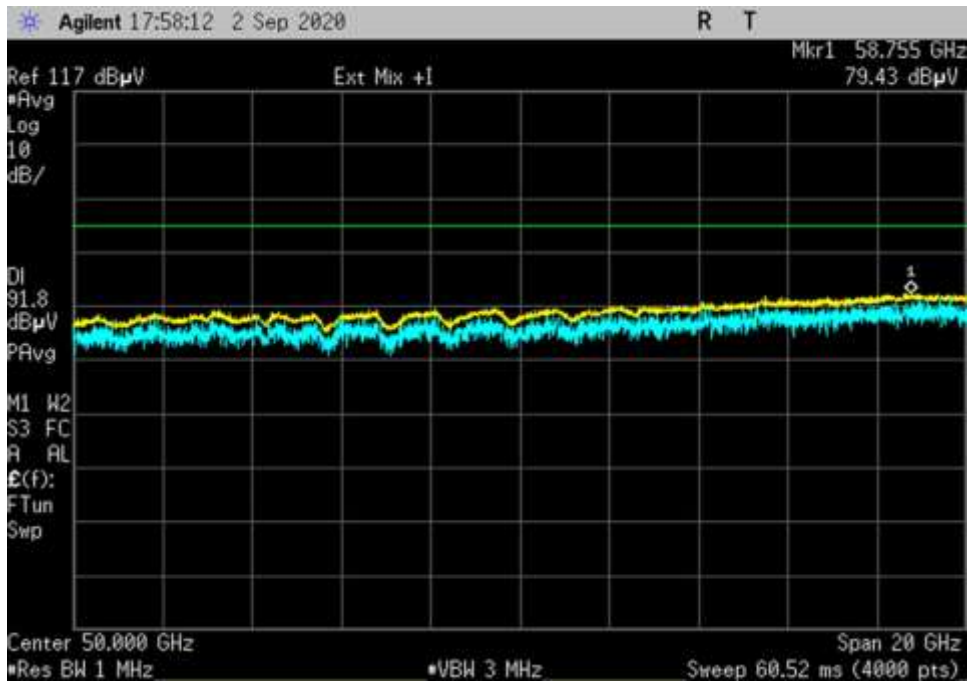
#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	T4 dB	T5 dB	T6 dB	T7 dB	T8 dB	T9 dB	T10 dB	T11 dB	T12 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant	
1	35823.000 M	43.6	+2.8 -29.1 +0.0	+5.8 +0.0 +0.0	+11.4 +0.0 +0.0	+44.5 +0.0 +0.0	+0.0	79.0	82.3	-3.3	Horiz									
2	34756.000 M	41.5	+2.5 -28.6 +0.0	+5.8 +0.0 +0.0	+11.3 +0.0 +0.0	+44.3 +0.0 +0.0	+0.0	76.8	82.3	-5.5	Vert									
3	30194.000 M	41.0	+3.2 -28.7 +0.0	+5.3 +0.0 +0.0	+10.4 +0.0 +0.0	+44.0 +0.0 +0.0	+0.0	75.2	82.3	-7.1	Horiz									
4	31441.500 M	39.3	+3.1 -28.7 +0.0	+5.4 +0.0 +0.0	+10.5 +0.0 +0.0	+44.1 +0.0 +0.0	+0.0	73.7	82.3	-8.6	Horiz									
5	29703.000 M	39.1	+3.4 -29.2 +0.0	+5.1 +0.0 +0.0	+10.3 +0.0 +0.0	+43.9 +0.0 +0.0	+0.0	72.6	82.3	-9.7	Vert									
6	26638.000 M	40.8	+4.0 -30.7 +0.0	+4.9 +0.0 +0.0	+9.6 +0.0 +0.0	+43.6 +0.0 +0.0	+0.0	72.2	82.3	-10.1	Vert									
7	3525.000M	38.3	+0.0 -26.1 +0.0	+0.0 +0.0 +30.6	+0.0 +0.0 +1.5	+0.0 +0.0 +3.1	+0.0	47.4	82.3	-34.9	Vert									
8	24893.500 M	41.8	+0.0 +0.0 +0.0	+4.7 -15.6 +0.0	+9.3 +3.1 +0.0	+0.0 +0.0 +0.0	+0.0	43.3	82.3	-39.0	Vert									
9	2350.000M	38.2	+0.0 -27.1 +0.0	+0.0 +0.0 +28.4	+0.0 +0.0 +1.2	+0.0 +0.0 +2.5	+0.0	43.2	82.3	-39.1	Vert									
10	25828.500 M	40.0	+0.0 +0.0 +0.0	+4.8 -14.8 +0.0	+9.4 +3.2 +0.0	+0.0 +0.0 +0.0	+0.0	42.6	82.3	-39.7	Vert									
11	21221.500 M	40.6	+0.0 +0.0 +0.0	+4.2 -16.1 +0.0	+8.5 +3.2 +0.0	+0.0 +0.0 +0.0	+0.0	40.4	82.3	-41.9	Horiz									
12	17028.000 M	38.8	+0.0 +0.0 +0.8	+3.7 +0.0 +0.0	+7.5 +0.0 +0.0	+0.0 -12.9 +0.0	+0.0	37.9	82.3	-44.4	Horiz									
13	1465.000M	38.7	+0.0 -28.7 +0.0	+0.0 +0.0 +24.4	+0.0 +0.0 +1.0	+0.0 +0.0 +2.0	+0.0	37.4	82.3	-44.9	Horiz									
14	15678.000 M	39.4	+0.0 +0.0 +0.8	+3.5 +0.0 +0.0	+7.1 +0.0 +0.0	+0.0 -14.1 +0.0	+0.0	36.7	82.3	-45.6	Horiz									

Plot Data

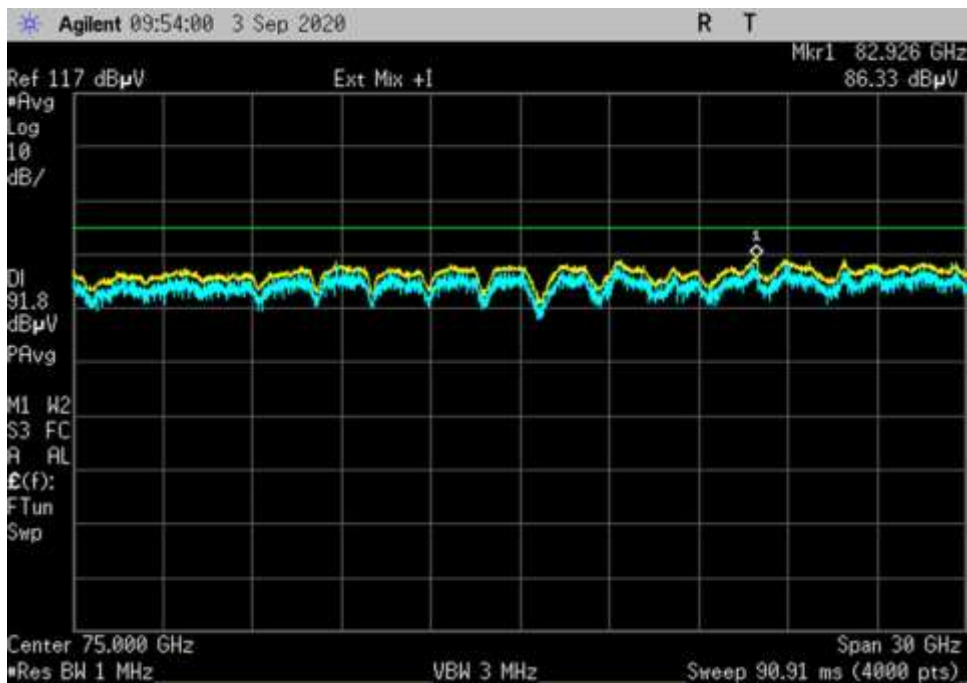
40-100GHz



UL-Hout-QPSK-100MHz_ 40000- 60000MHz_MC-H



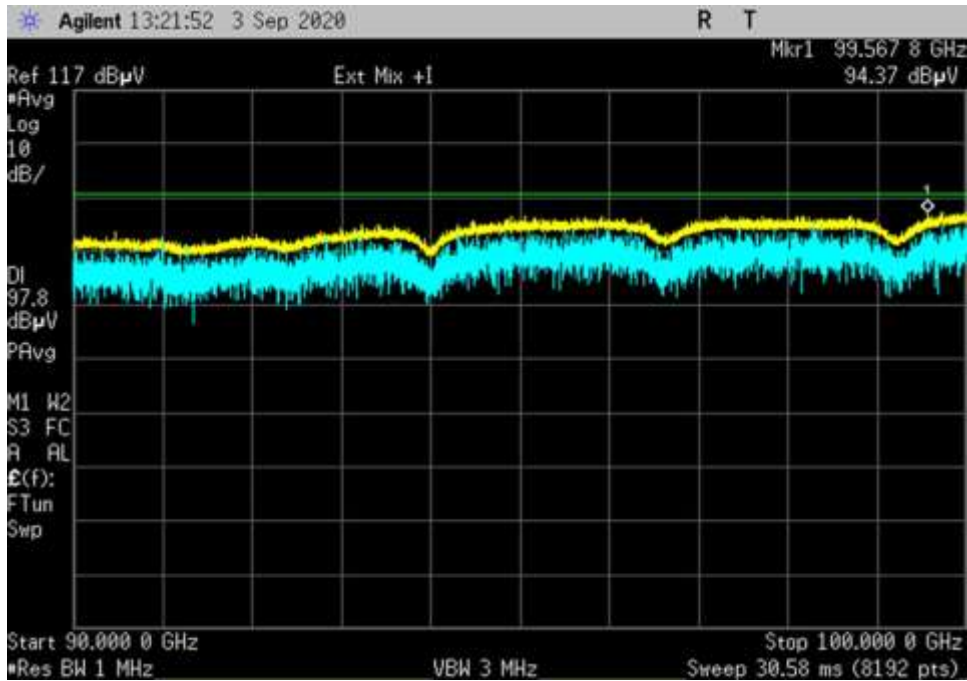
UL-Hout-QPSK-100MHz_ 40000- 60000MHz_MC-V



UL-Hout-QPSK-100MHz_ 60000- 90000MHz_MC-H



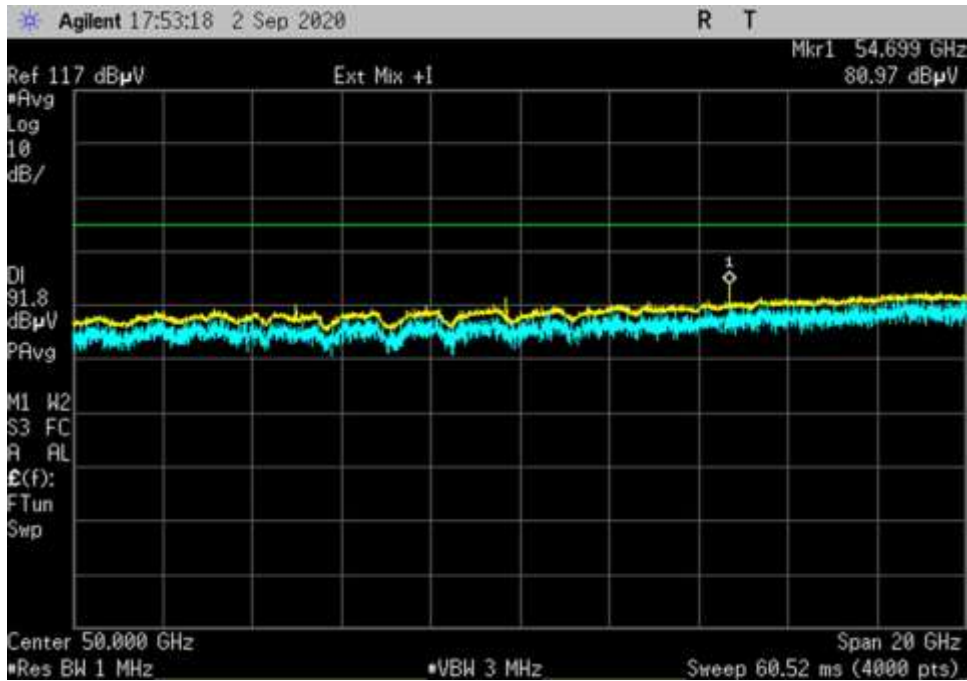
UL-Hout-QPSK-100MHz_ 60000- 90000MHz_MC-V



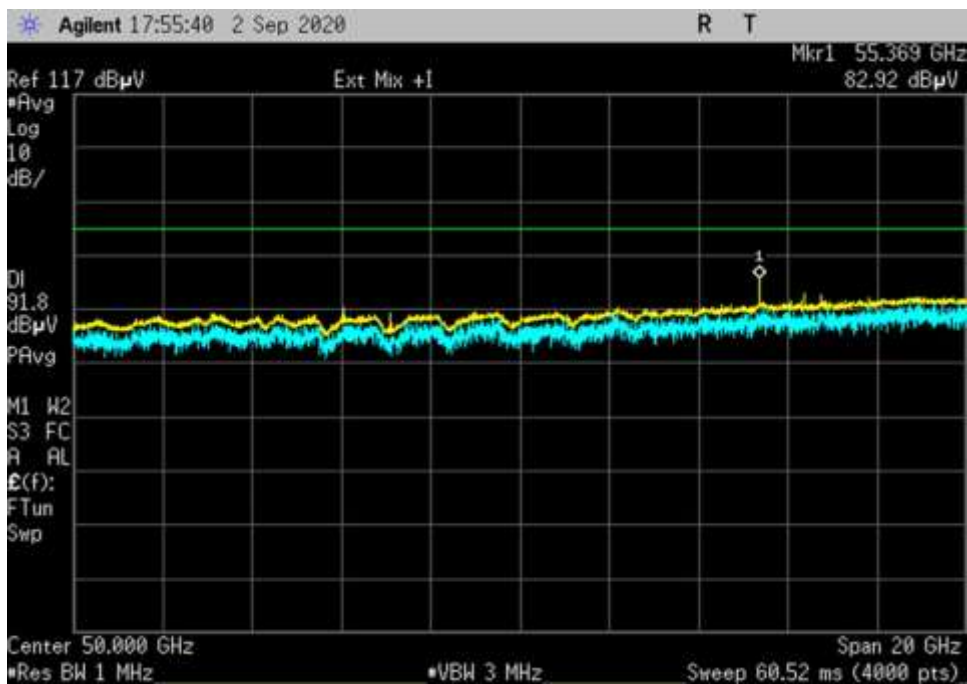
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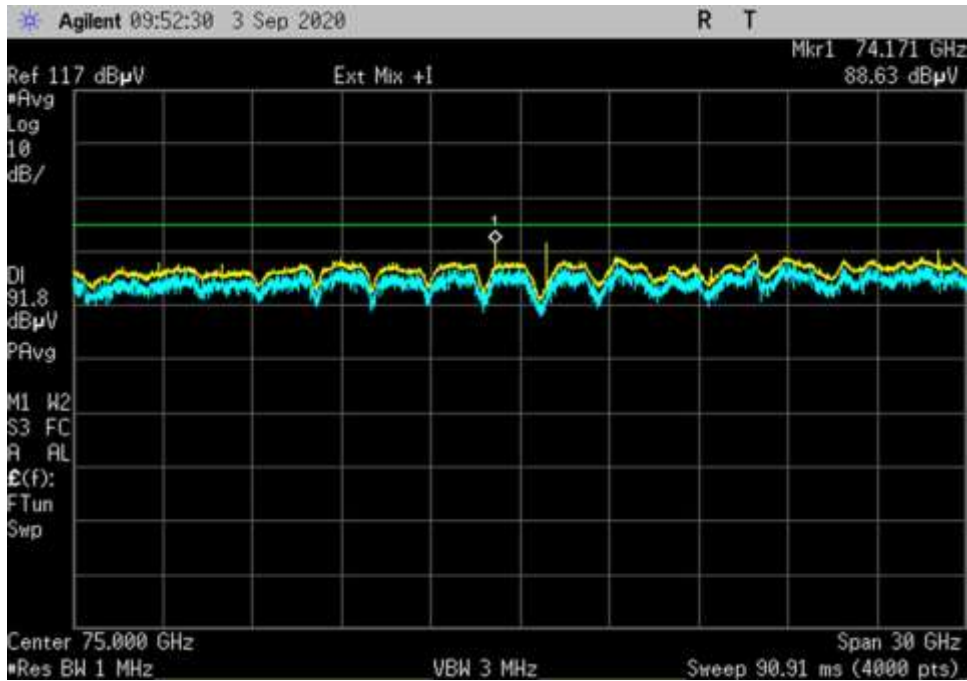
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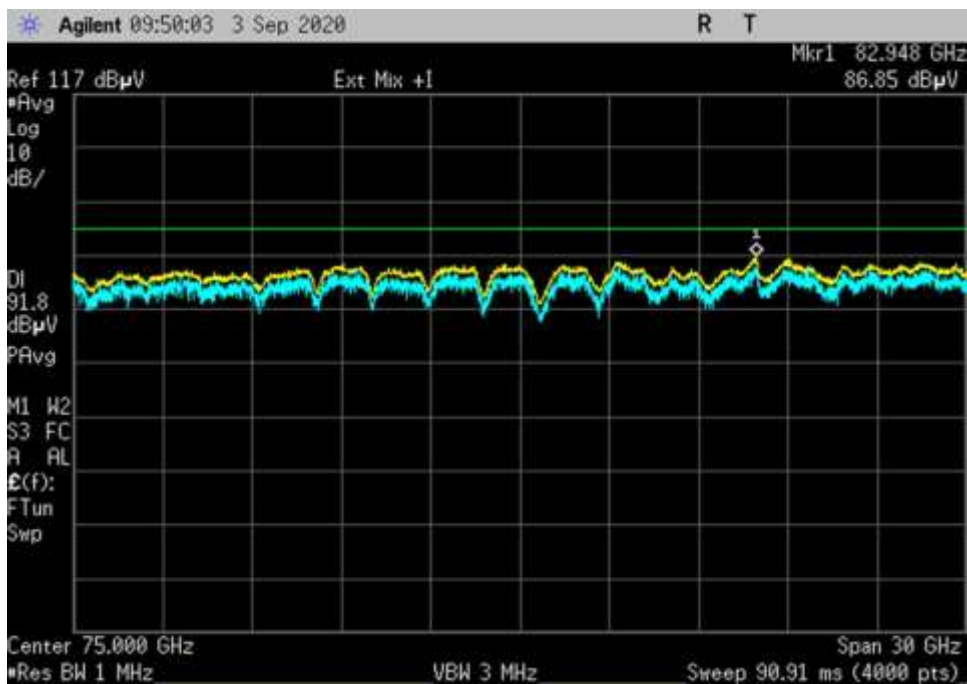
UL-Hout-QPSK-400MHz_ 40000- 60000MHz_MC-H



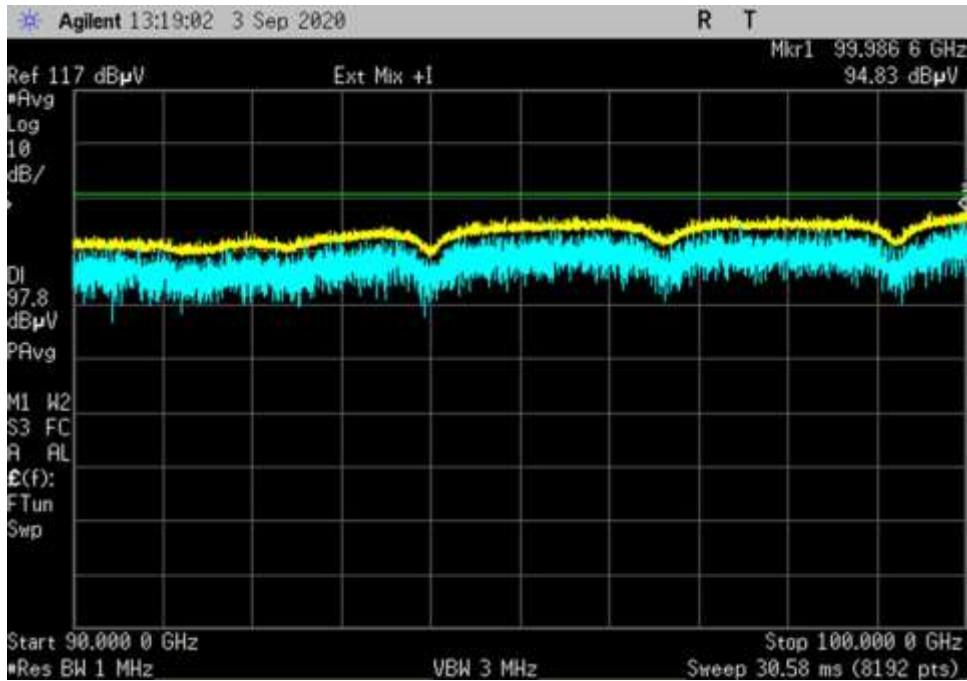
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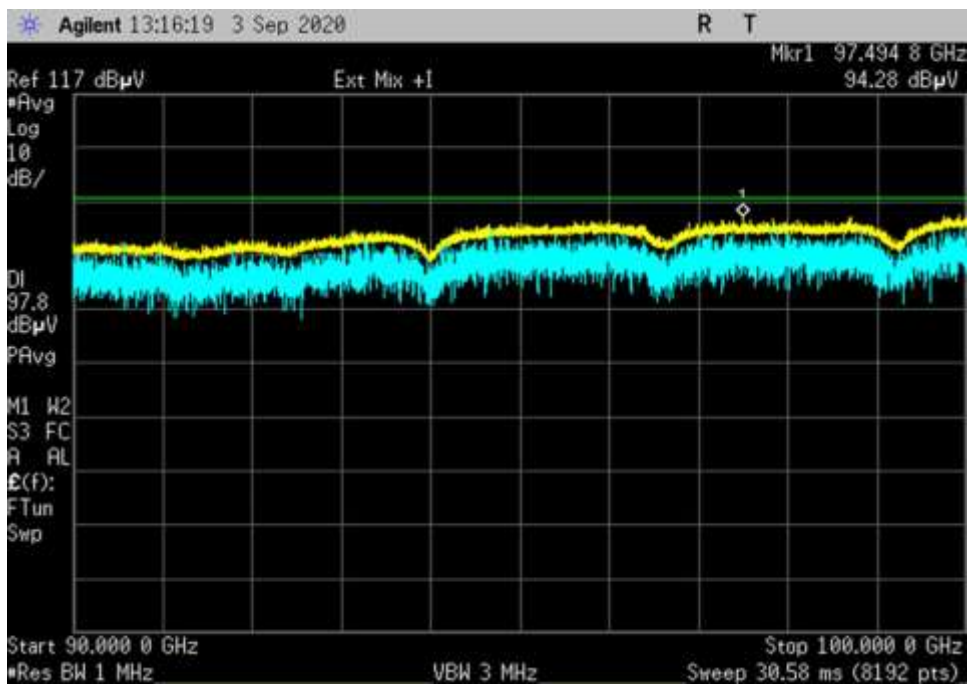
UL-Hout-QPSK-400MHz_ 60000- 90000MHz_MC-H



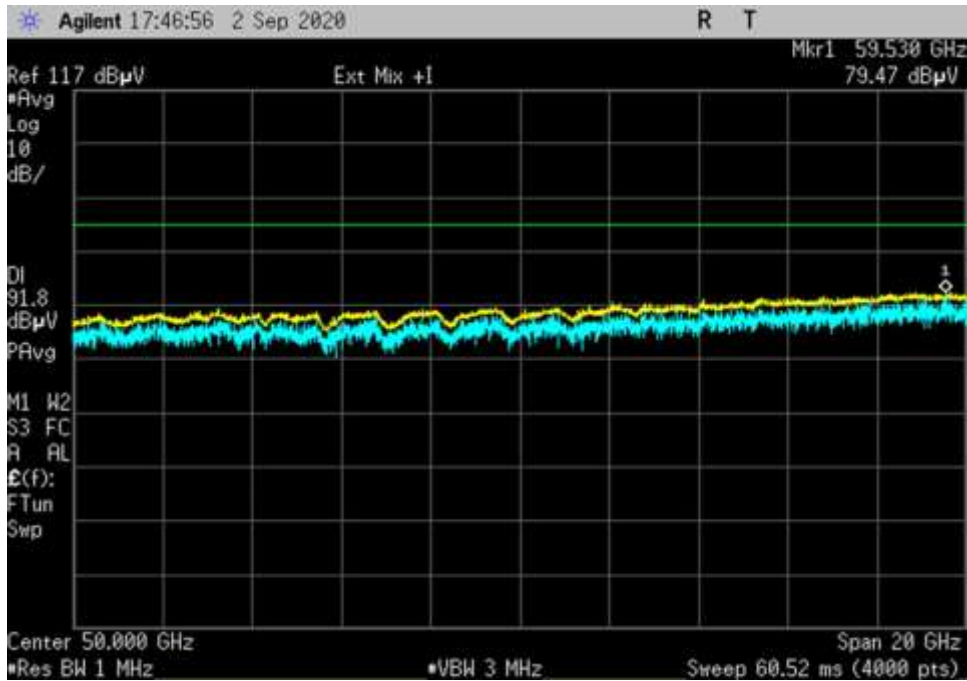
UL-Hout-QPSK-400MHz_ 60000- 90000MHz_MC-V



UL-Hout-QPSK-400MHz_90000-100000MHz_MC-H



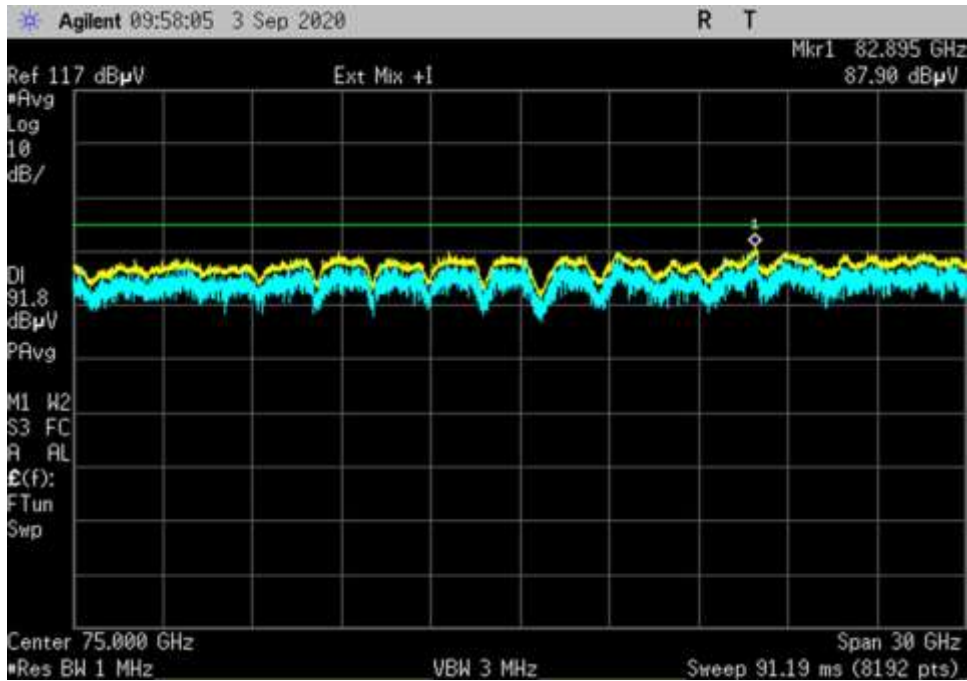
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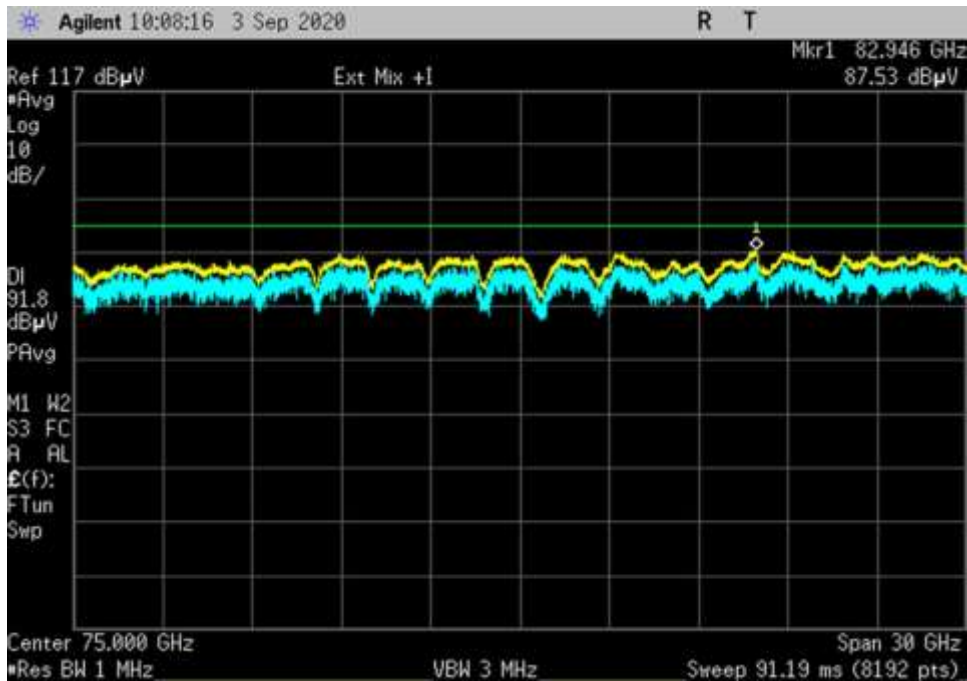
UL-Vout-Pi/2- BPSK-100MHz_ 40000- 60000MHz_MC-H



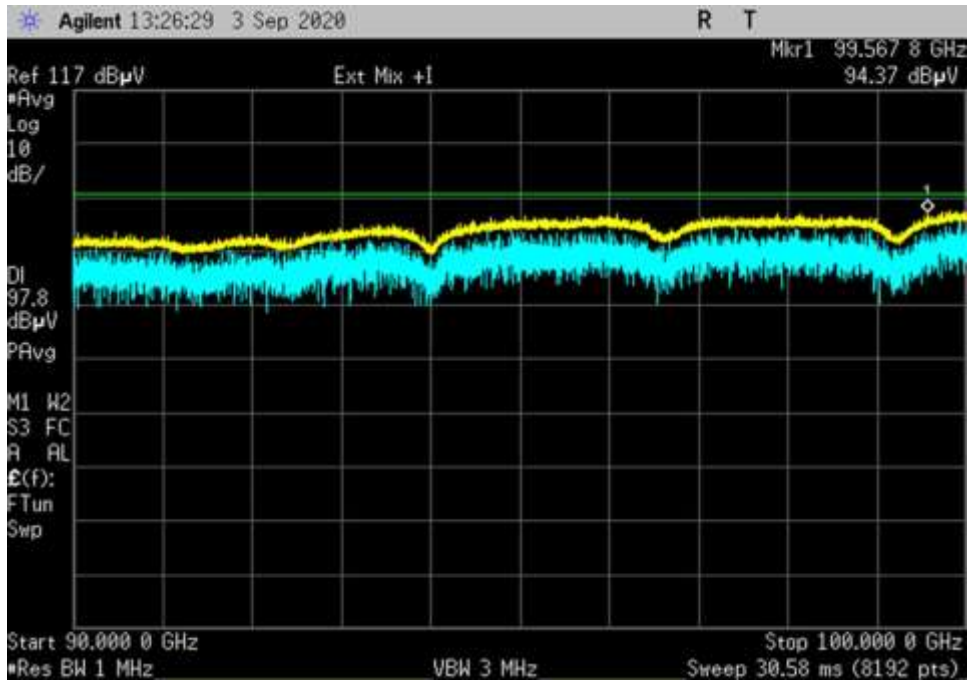
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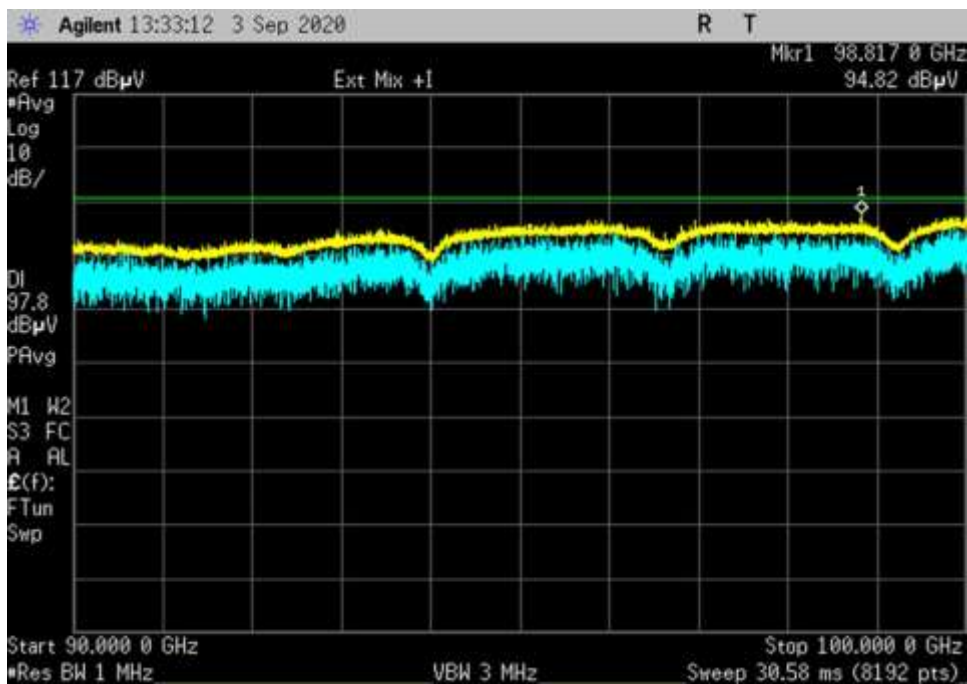
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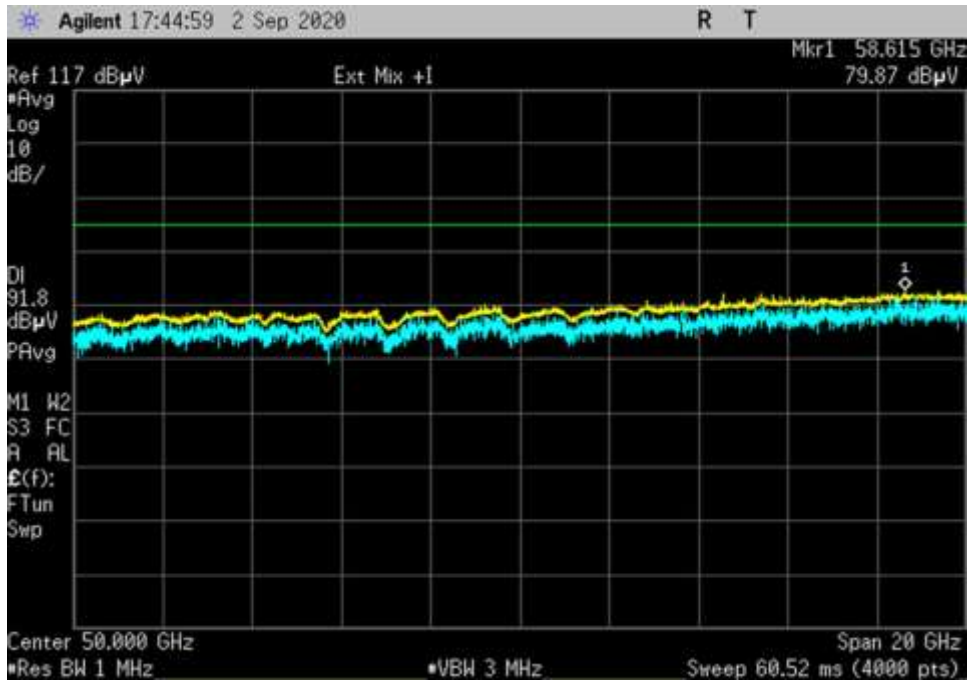
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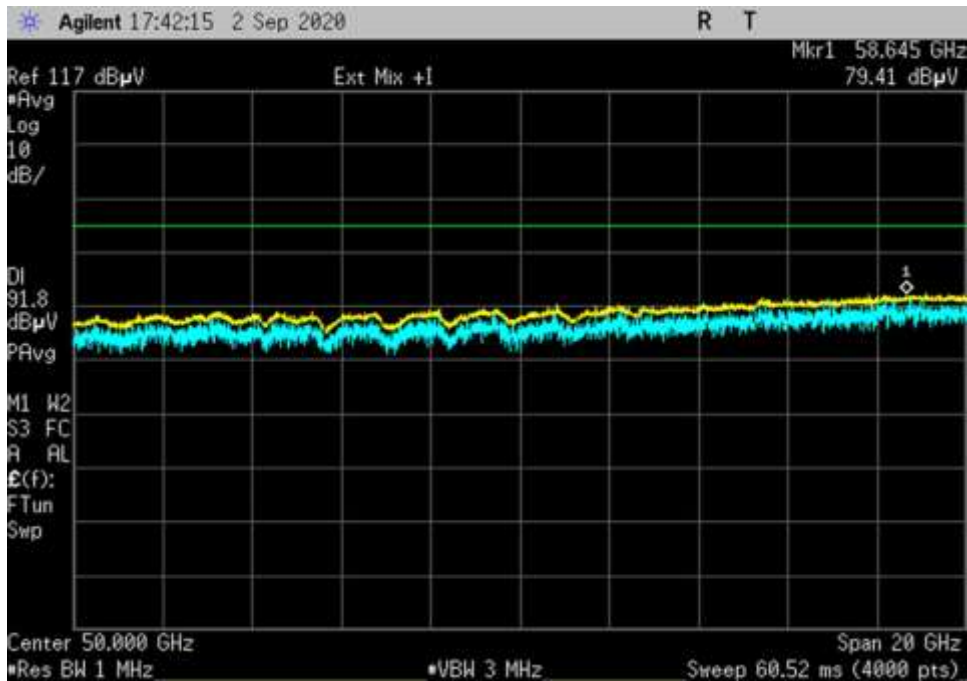
UL-Vout-Pi/2- BPSK-100MHz_ 90000- 100000MHz_MC-H



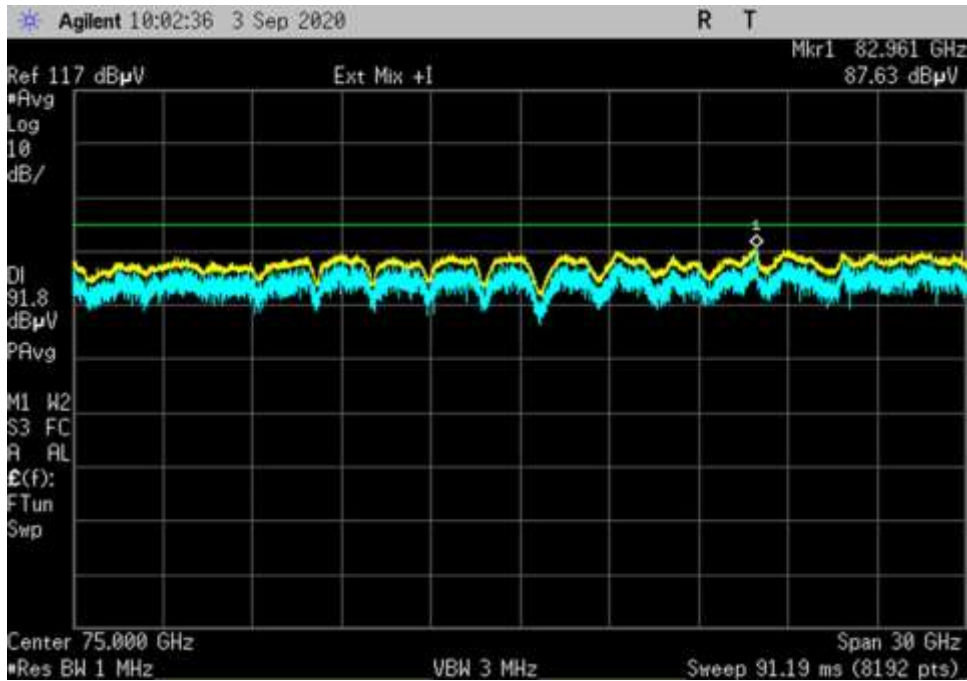
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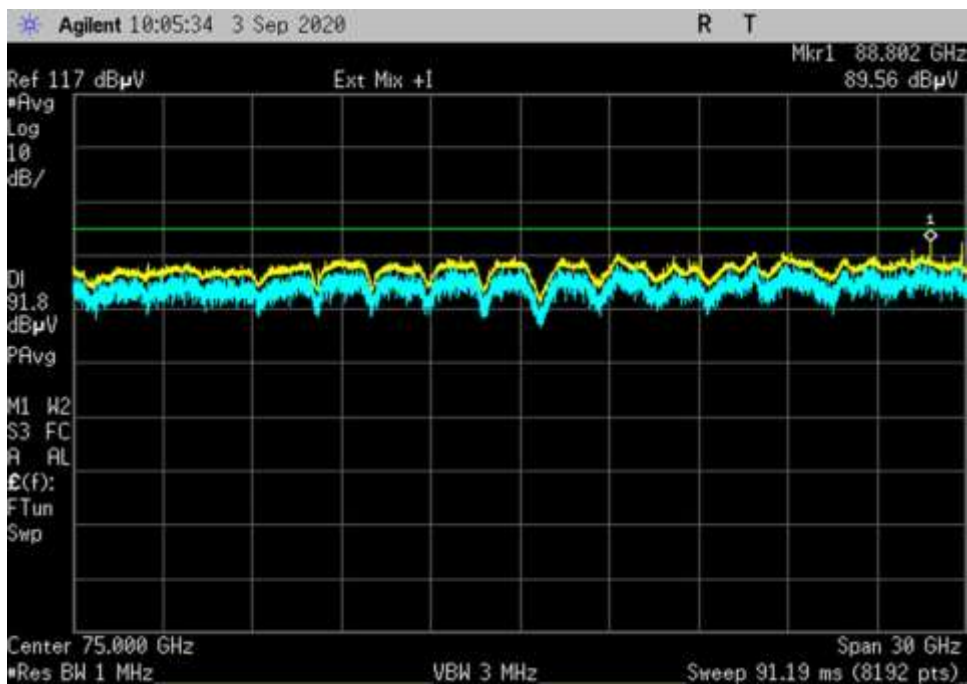
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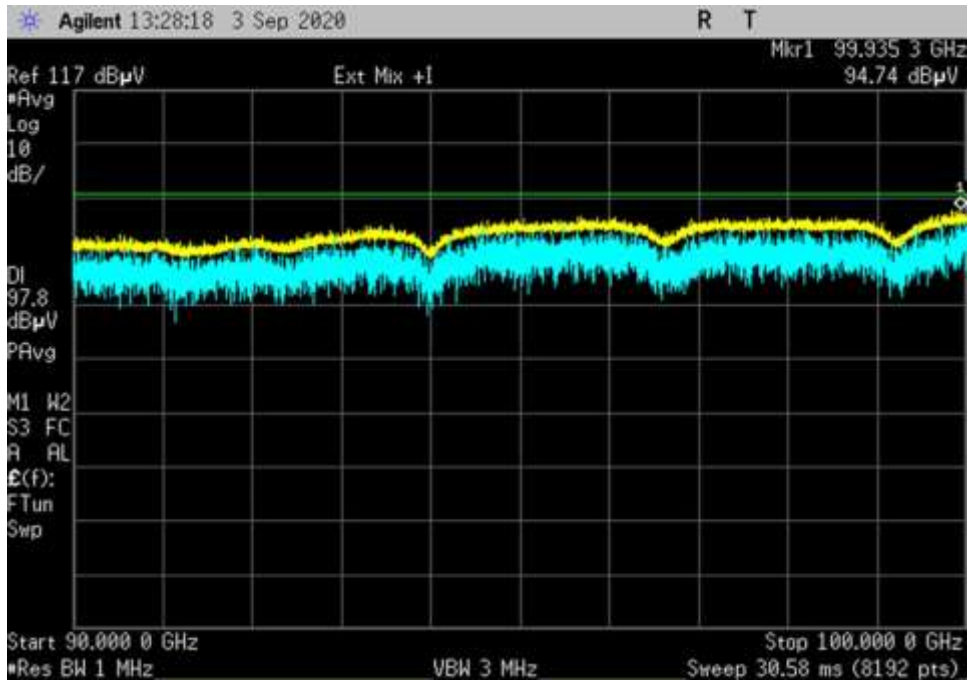
UL-Vout-Pi/2- BPSK-400MHz_ 40000- 60000MHz_MC-V



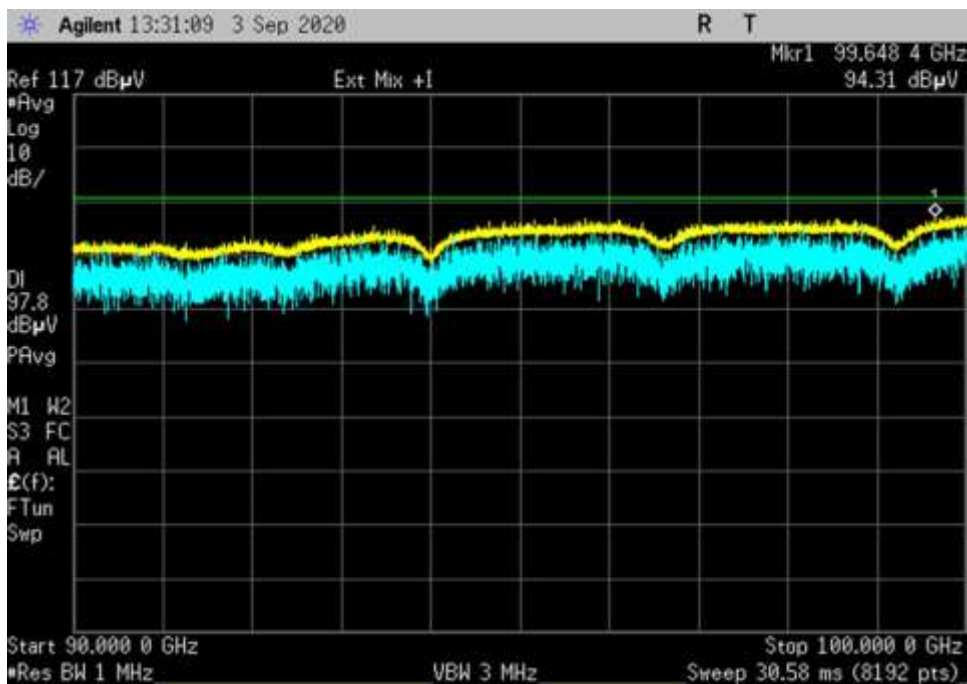
UL-Vout-Pi/2- BPSK-400MHz_ 60000- 90000MHz_MC-H



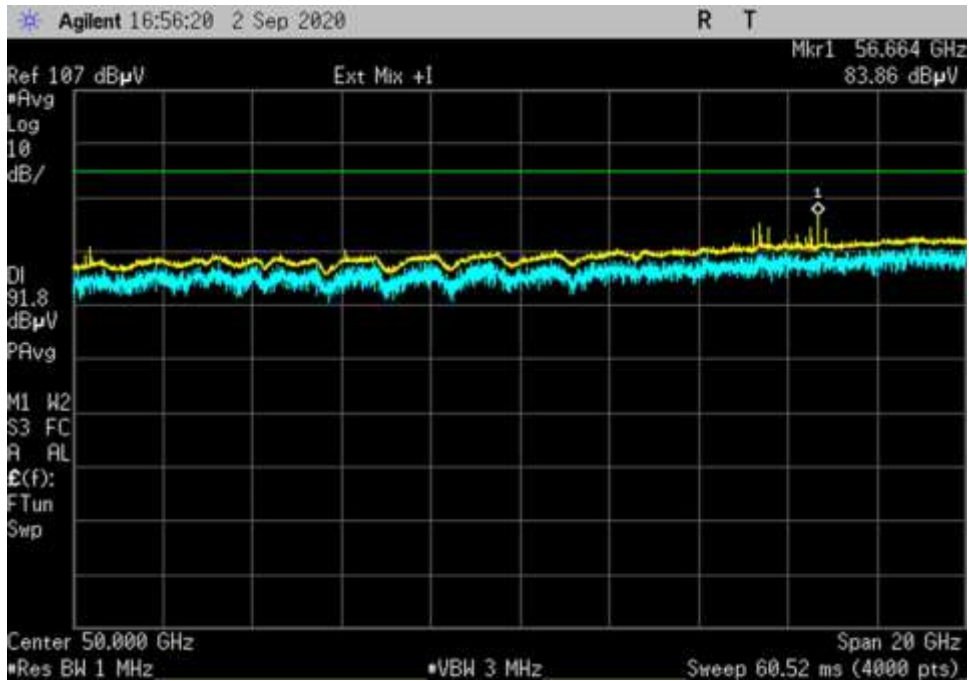
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UL-Vout-Pi/2- BPSK-400MHz_ 90000- 100000MHz_MC-H



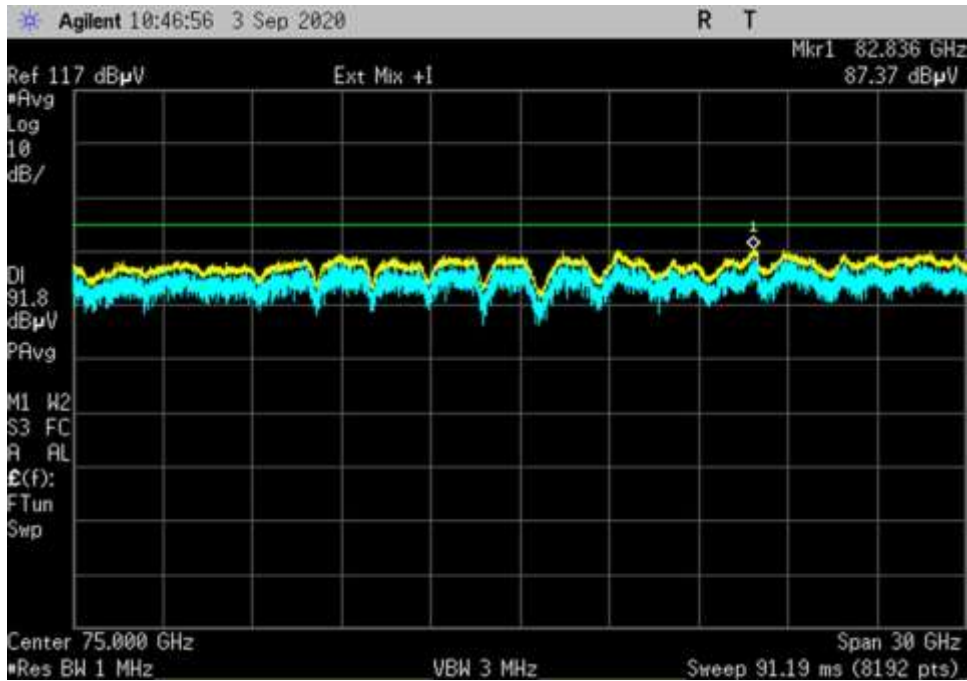
UL-Vout-Pi/2- BPSK-400MHz_ 90000- 100000MHz_MC-V



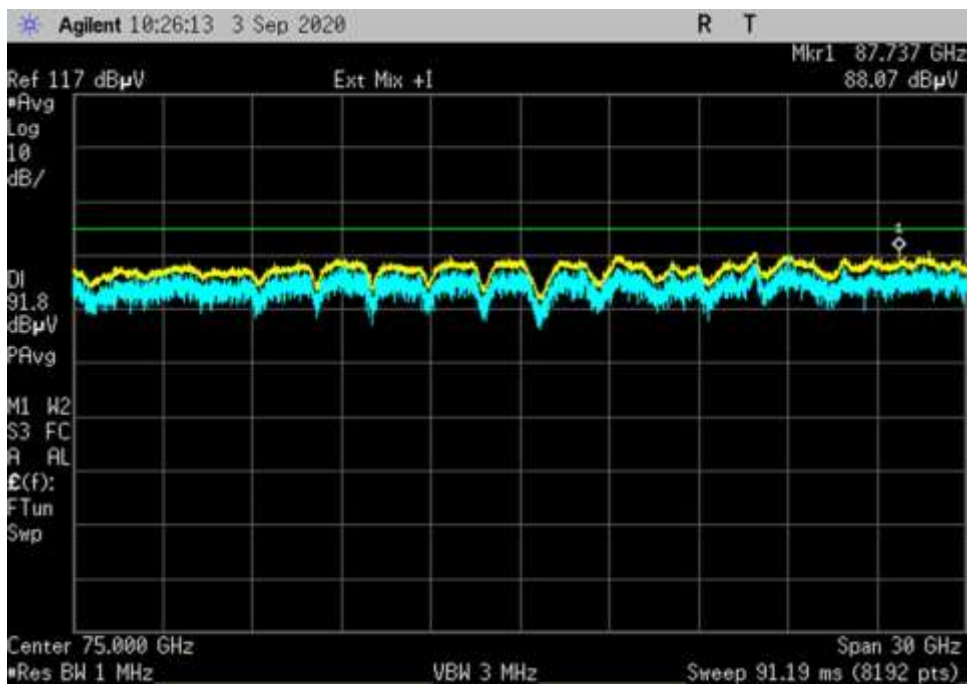
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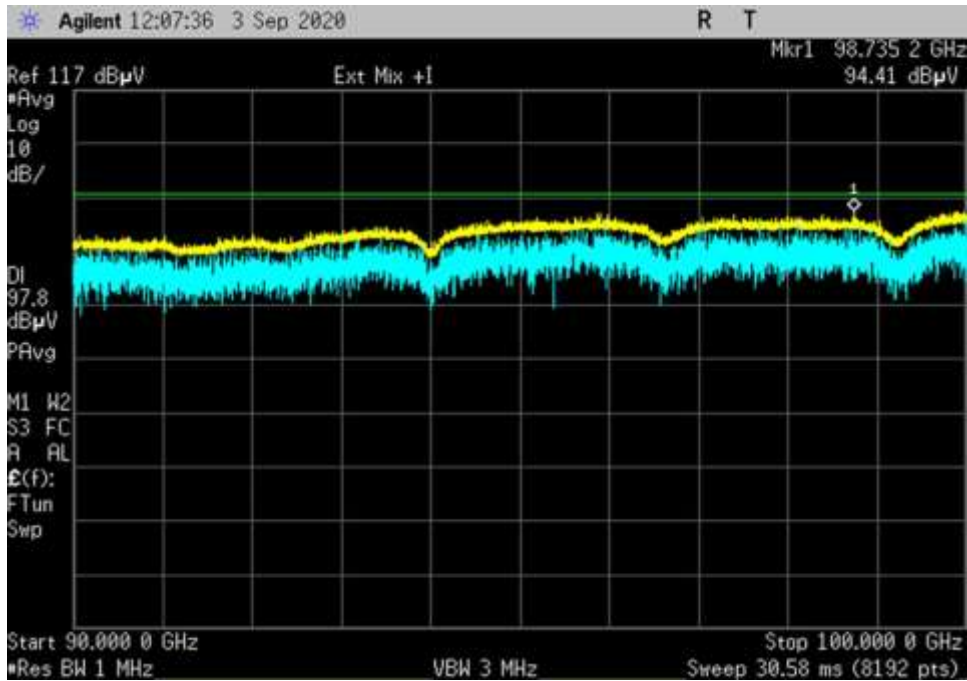
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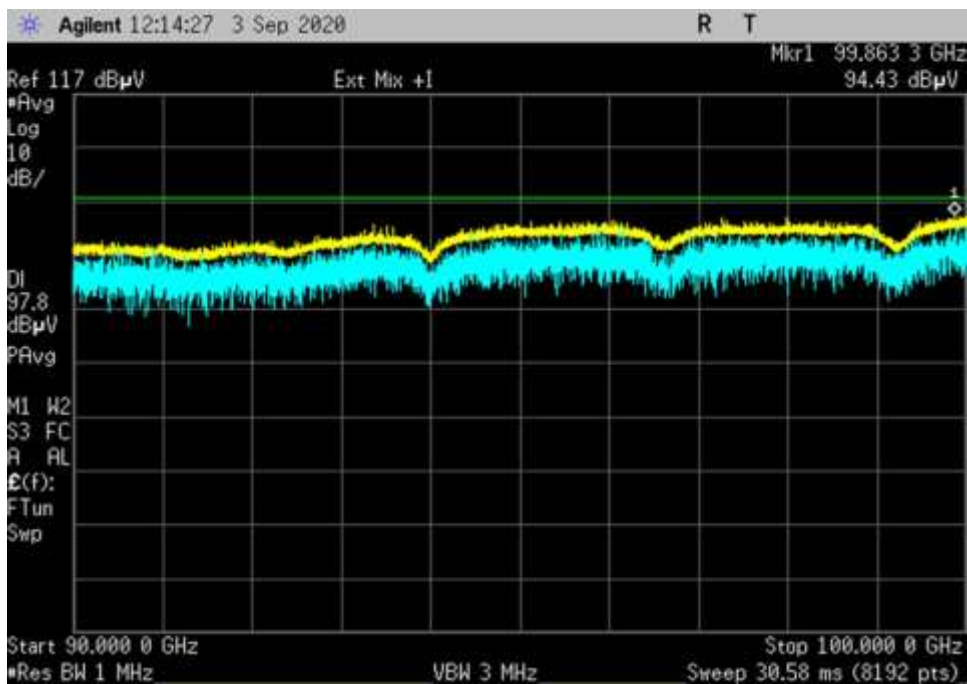
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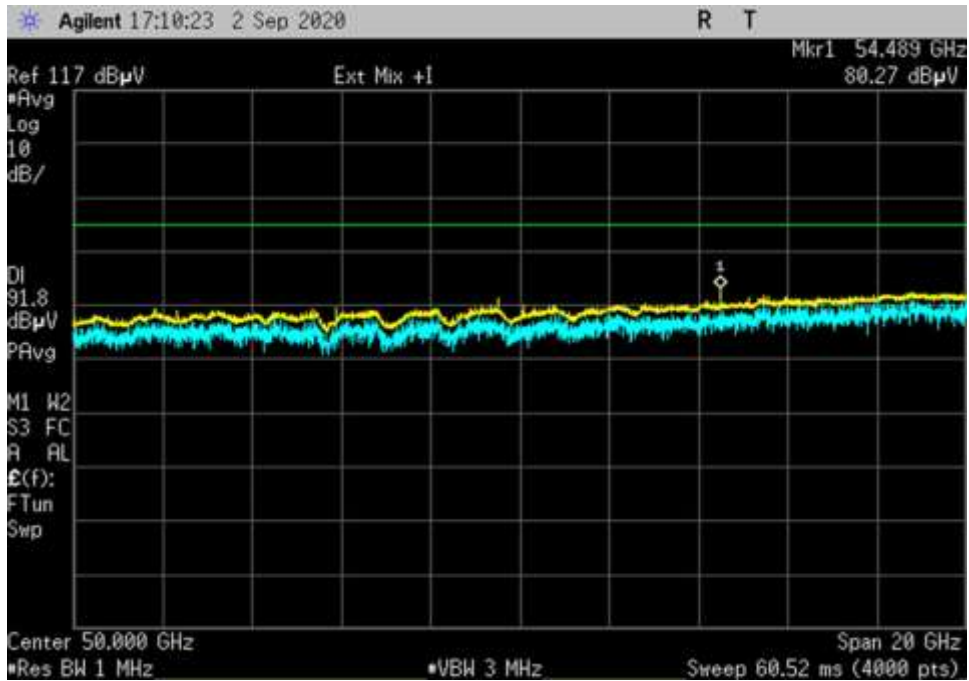
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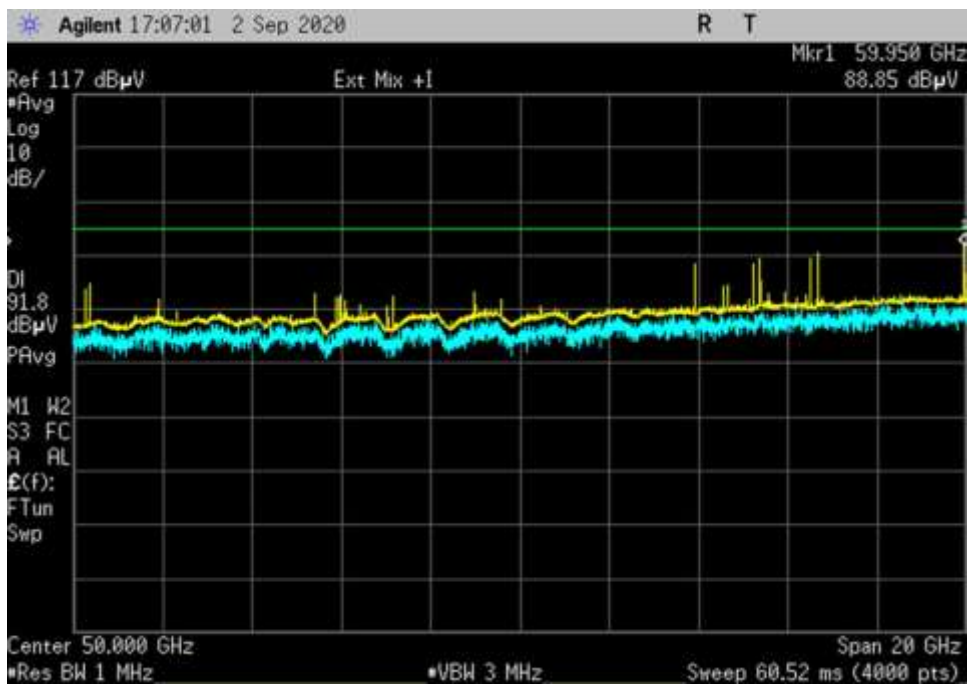
DL-Hout-64QAM-100MHz_90000-100000MHz_MC-H



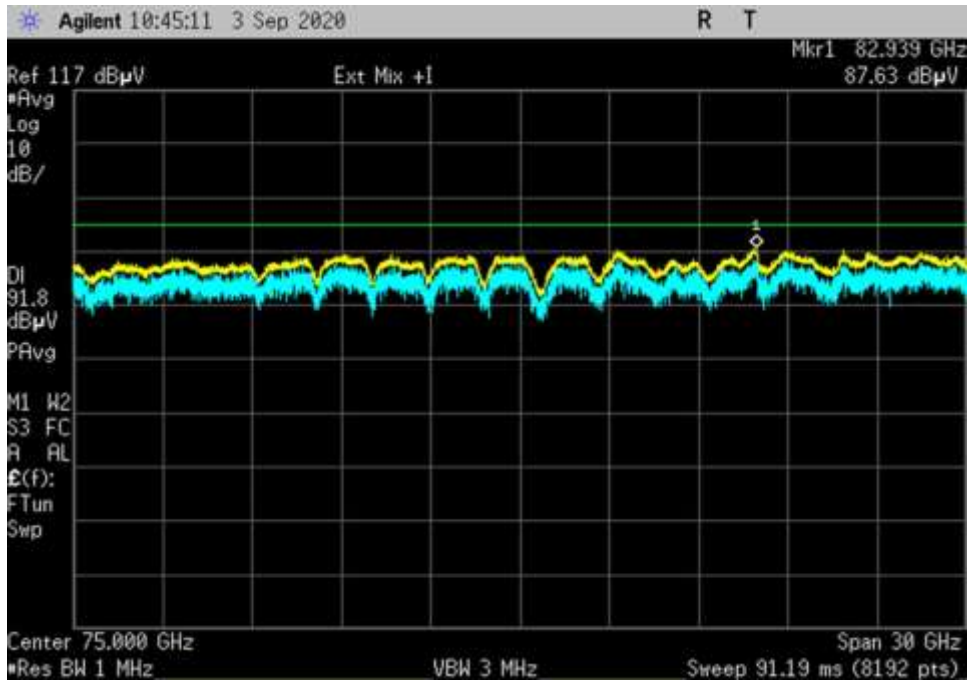
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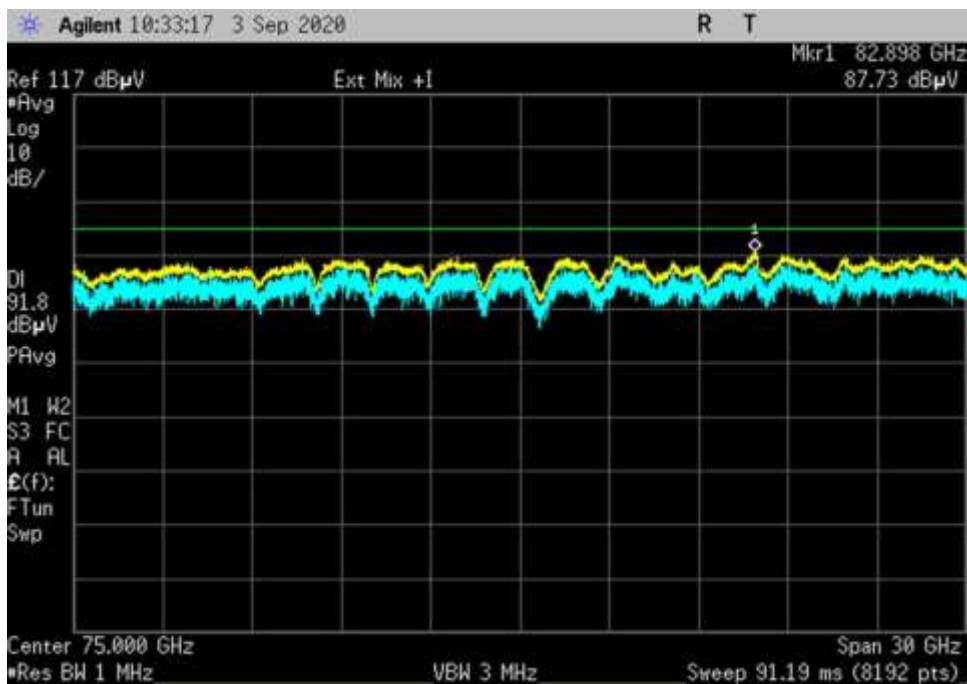
DL-Hout-QPSK-400MHz_ 40000- 60000MHz_MC-H



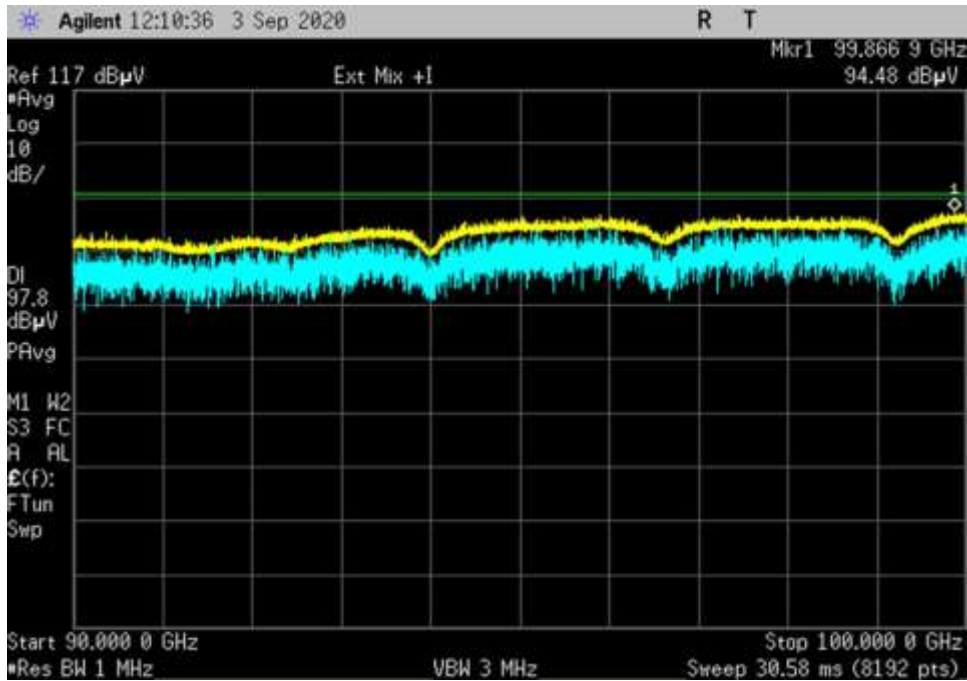
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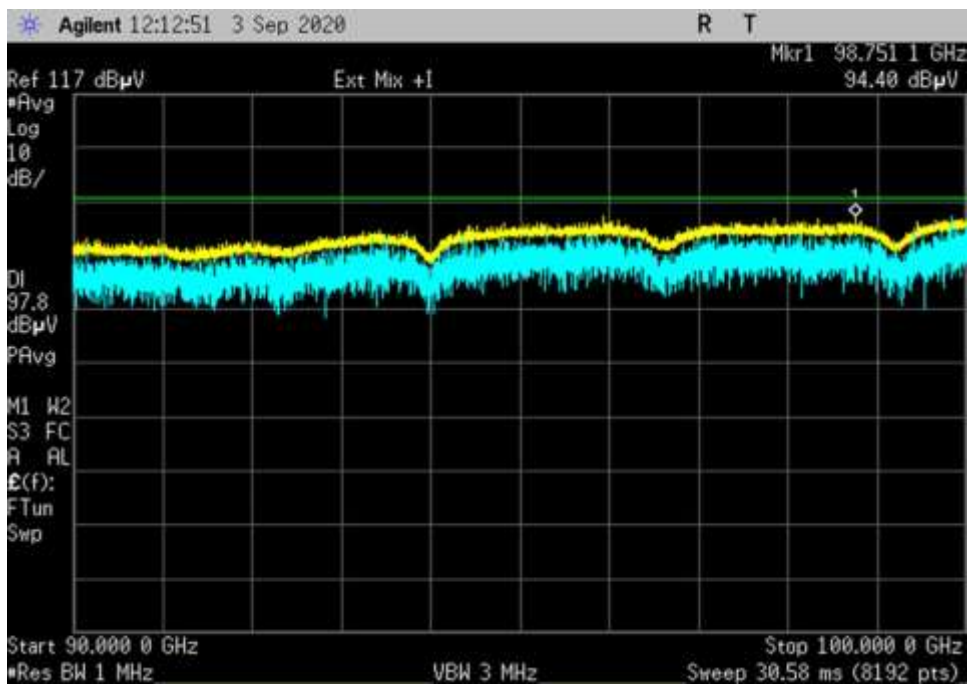
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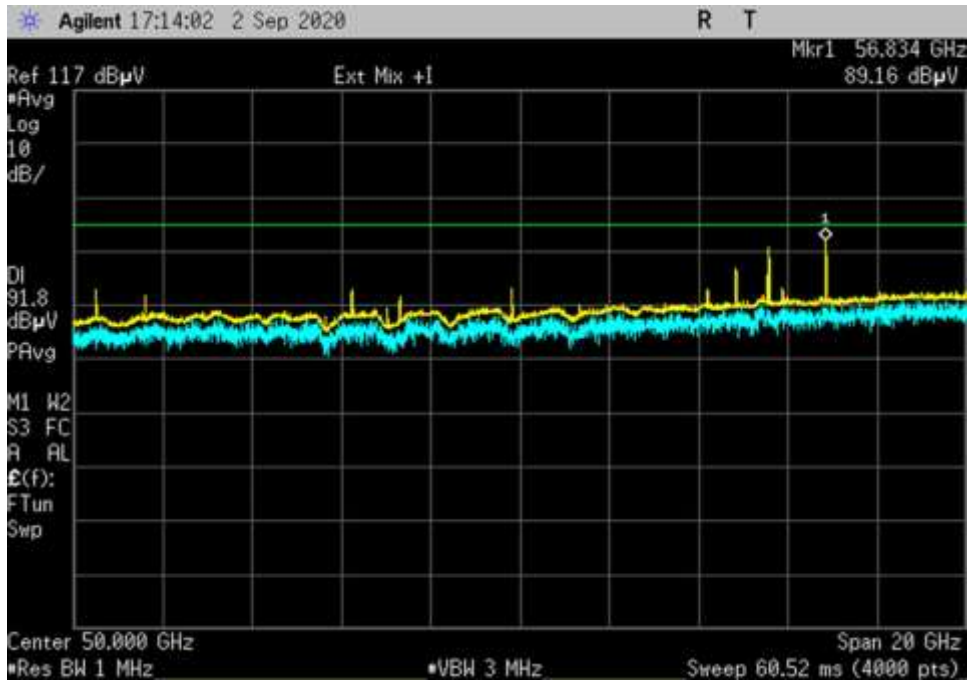
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DL-Hout-QPSK-400MHz_90000-100000MHz_MC-H



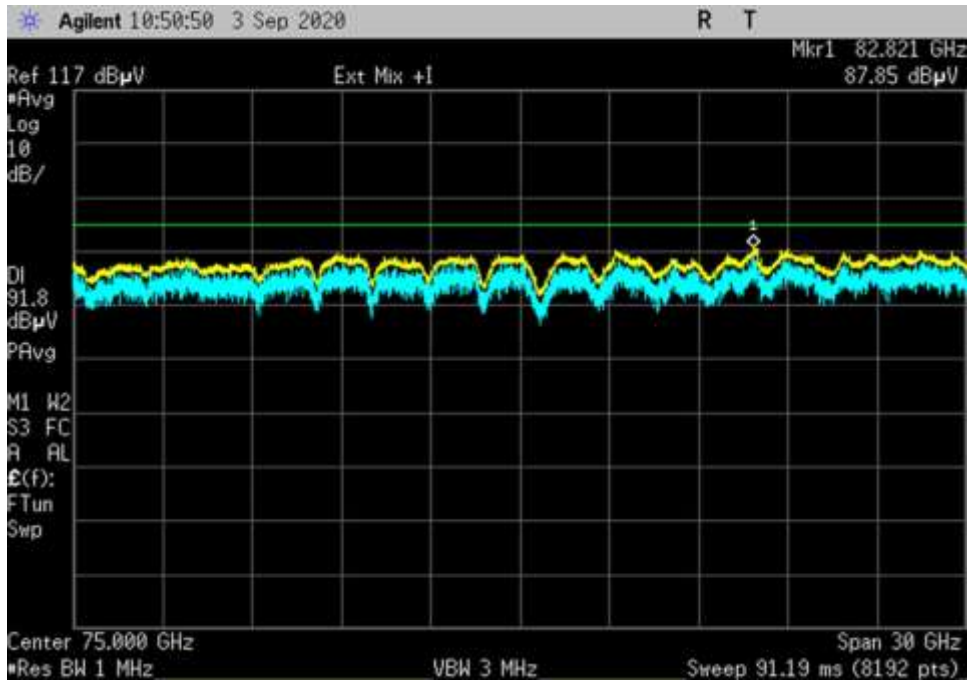
DL-Hout-QPSK-400MHz_90000-100000MHz_MC-V



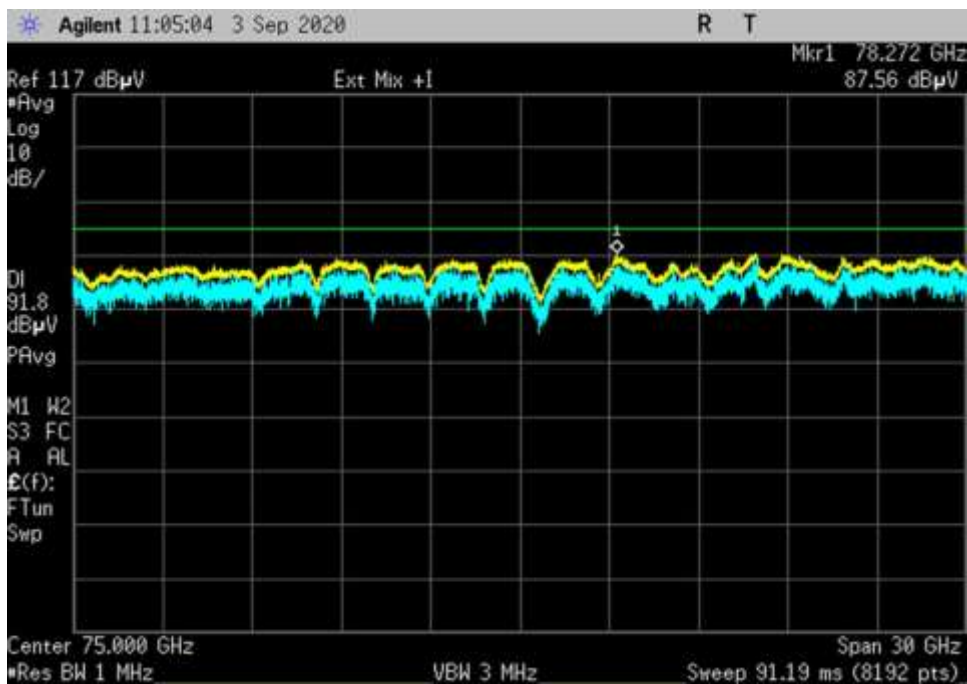
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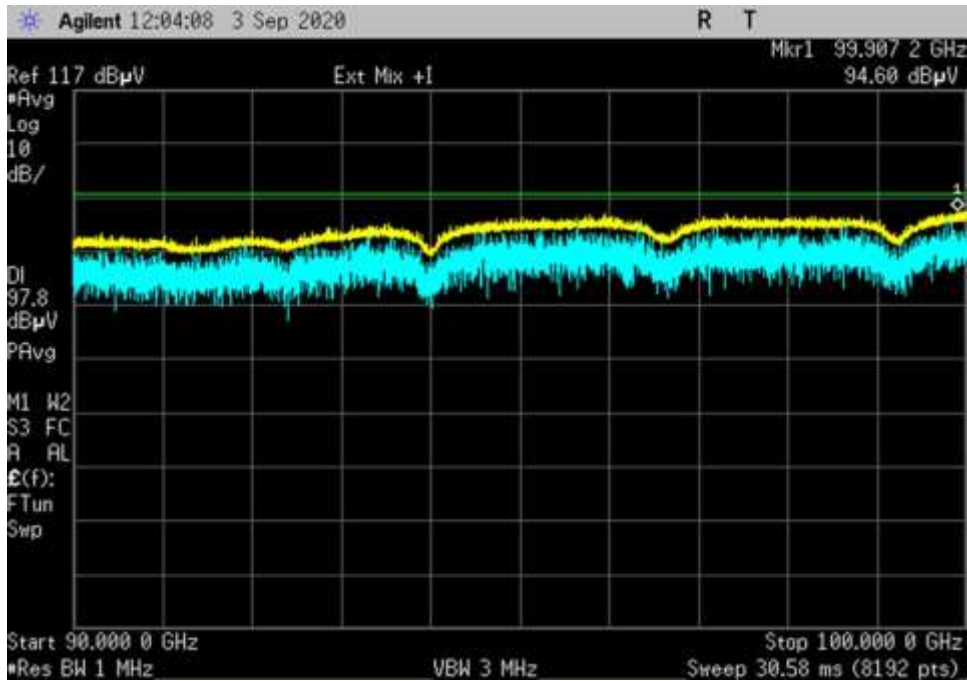
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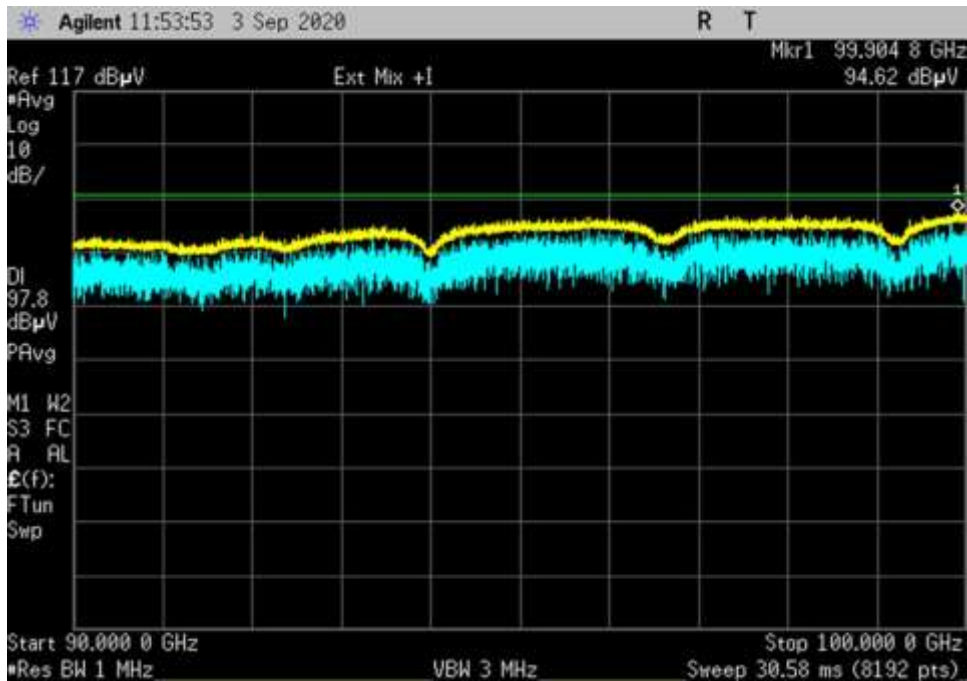
DL-Vout-64QAM-100MHz_ 60000- 90000MHz_MC-H



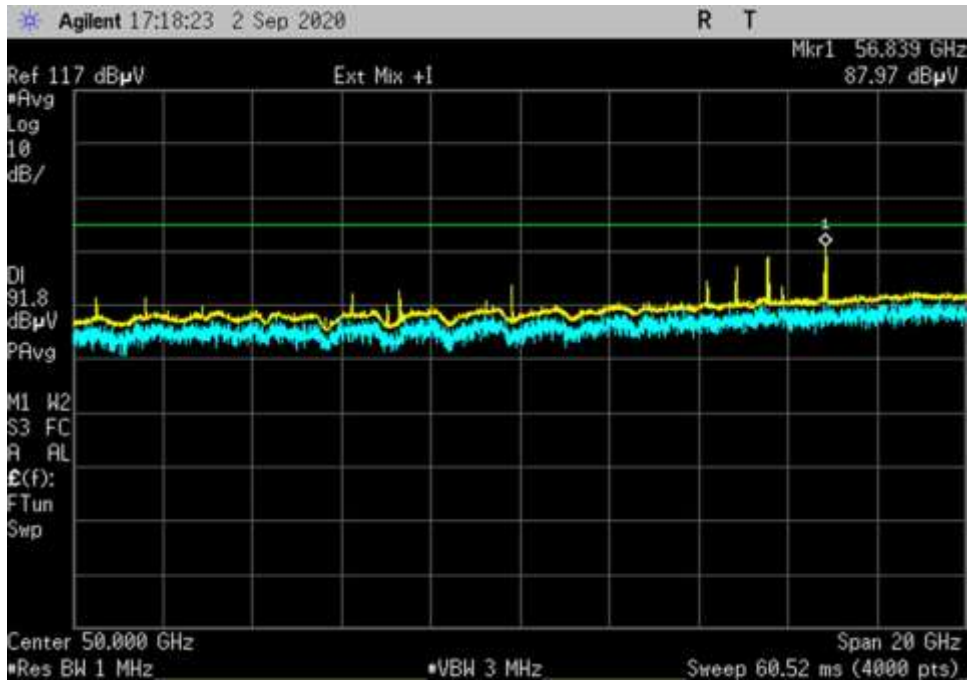
DL-Vout-64QAM-100MHz_ 60000- 90000MHz_MC-V



DL-Vout-64QAM-100MHz_90000-100000MHz_MC-H



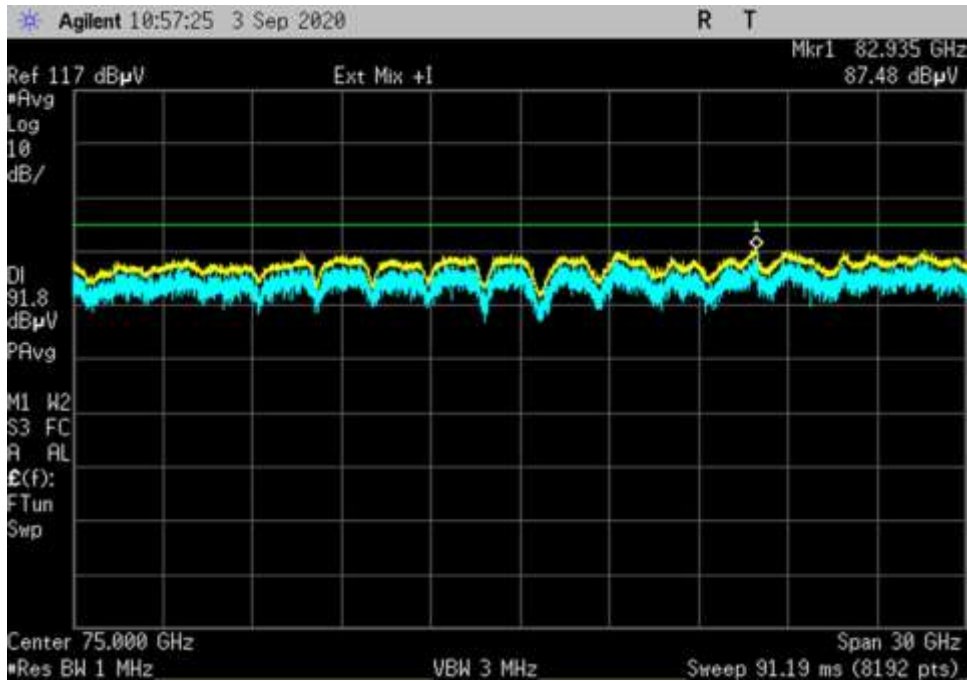
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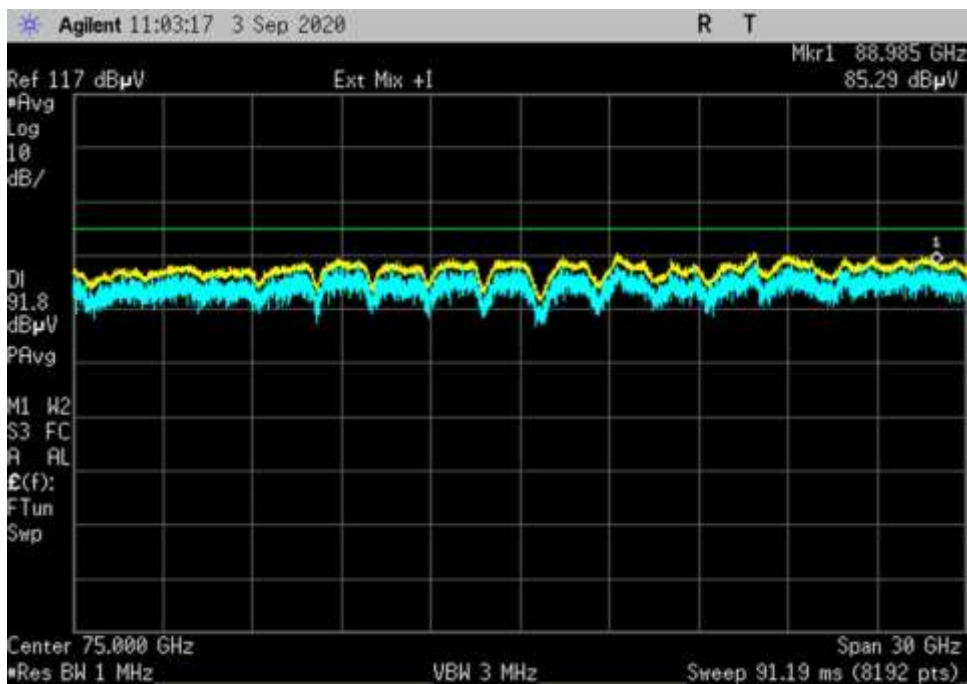
DL-Vout-256QAM-400MHz_ 40000- 60000MHz_MC-H



DL-Vout-256QAM-400MHz_ 40000- 60000MHz_MC-V



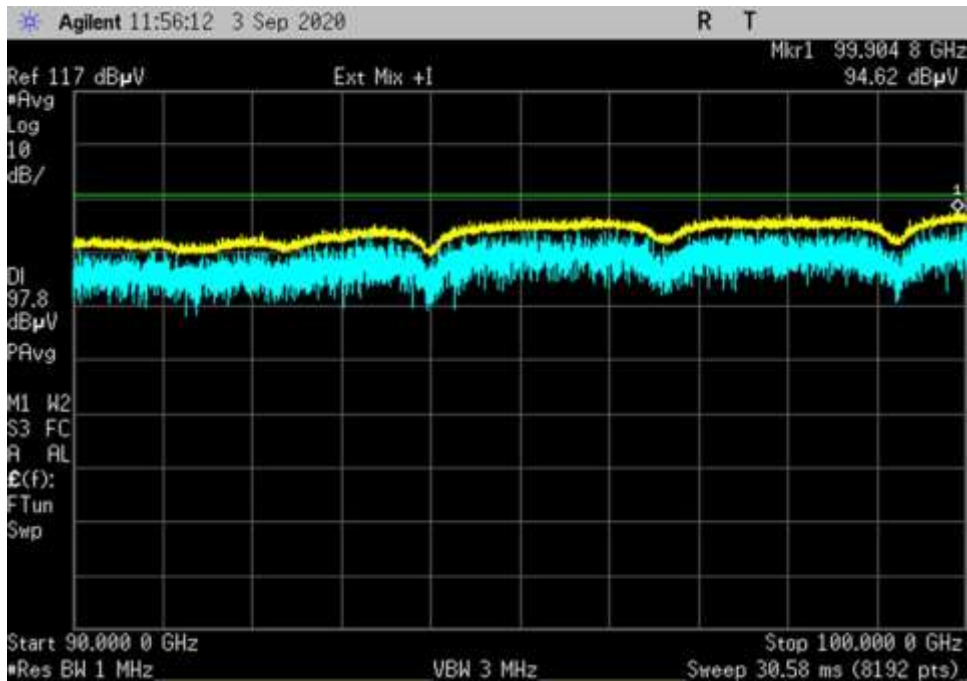
DL-Vout-256QAM-400MHz_ 60000- 90000MHz_MC-H



DL-Vout-256QAM-400MHz_ 60000- 90000MHz_MC-V

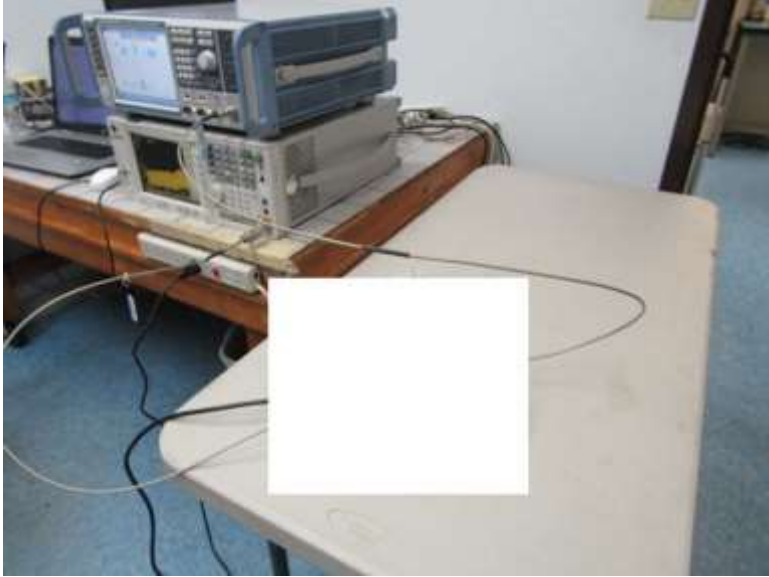


DL-Vout-256QAM-400MHz_90000-100000MHz_MC-H

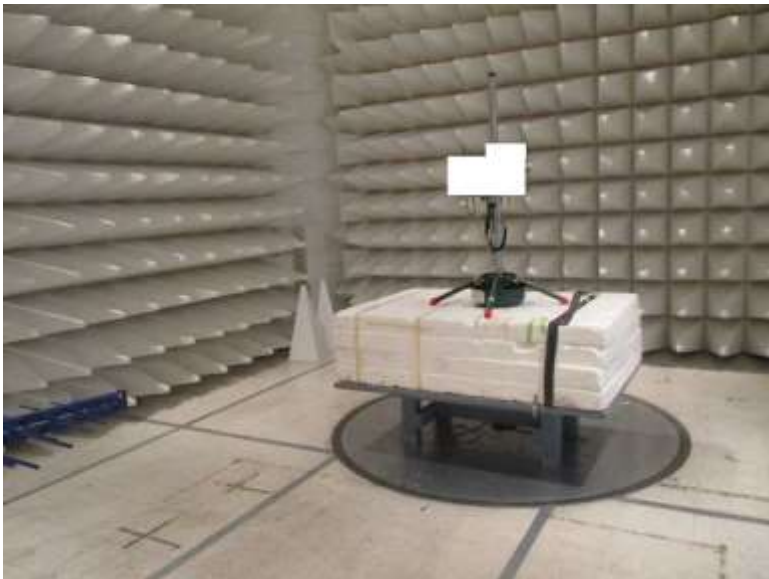


DL-Vout-256QAM-400MHz_90000-100000MHz_MC-V

Exhibit A: Block Diagrams of Test Setup



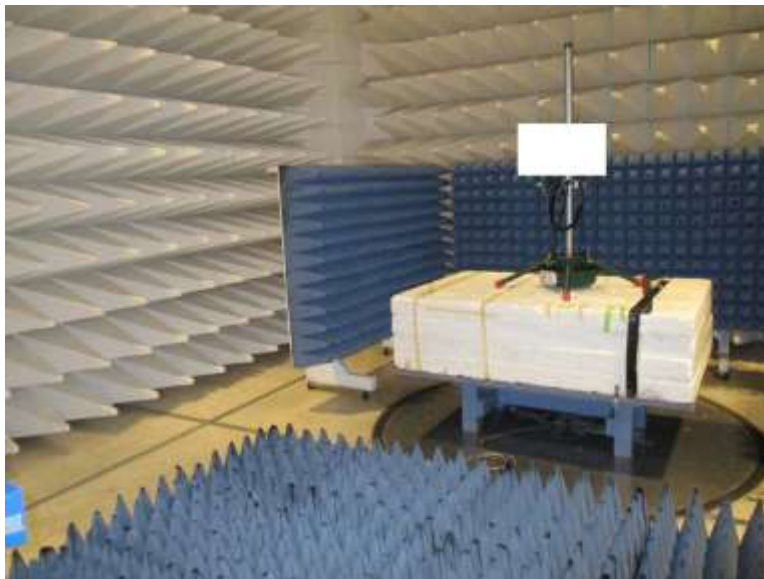
Section 4.4.2 Test Setup



Below 1GHz

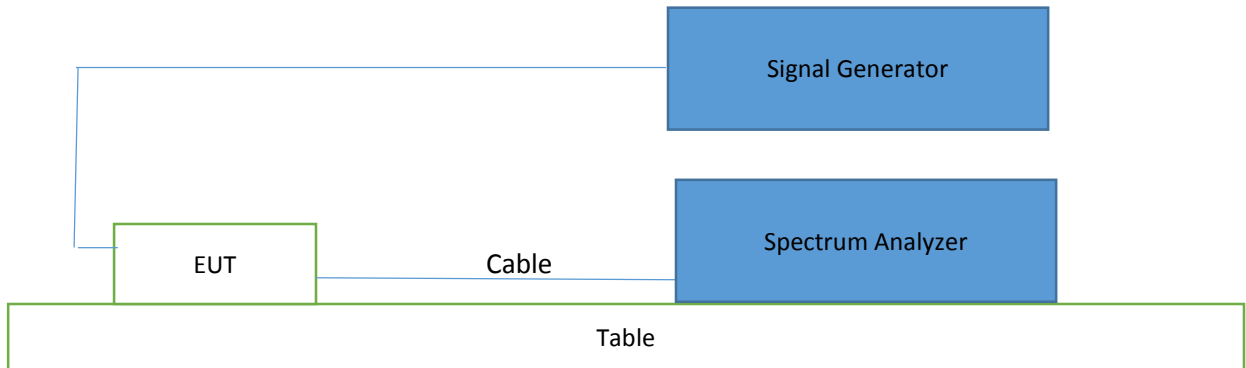


Above 1GHz

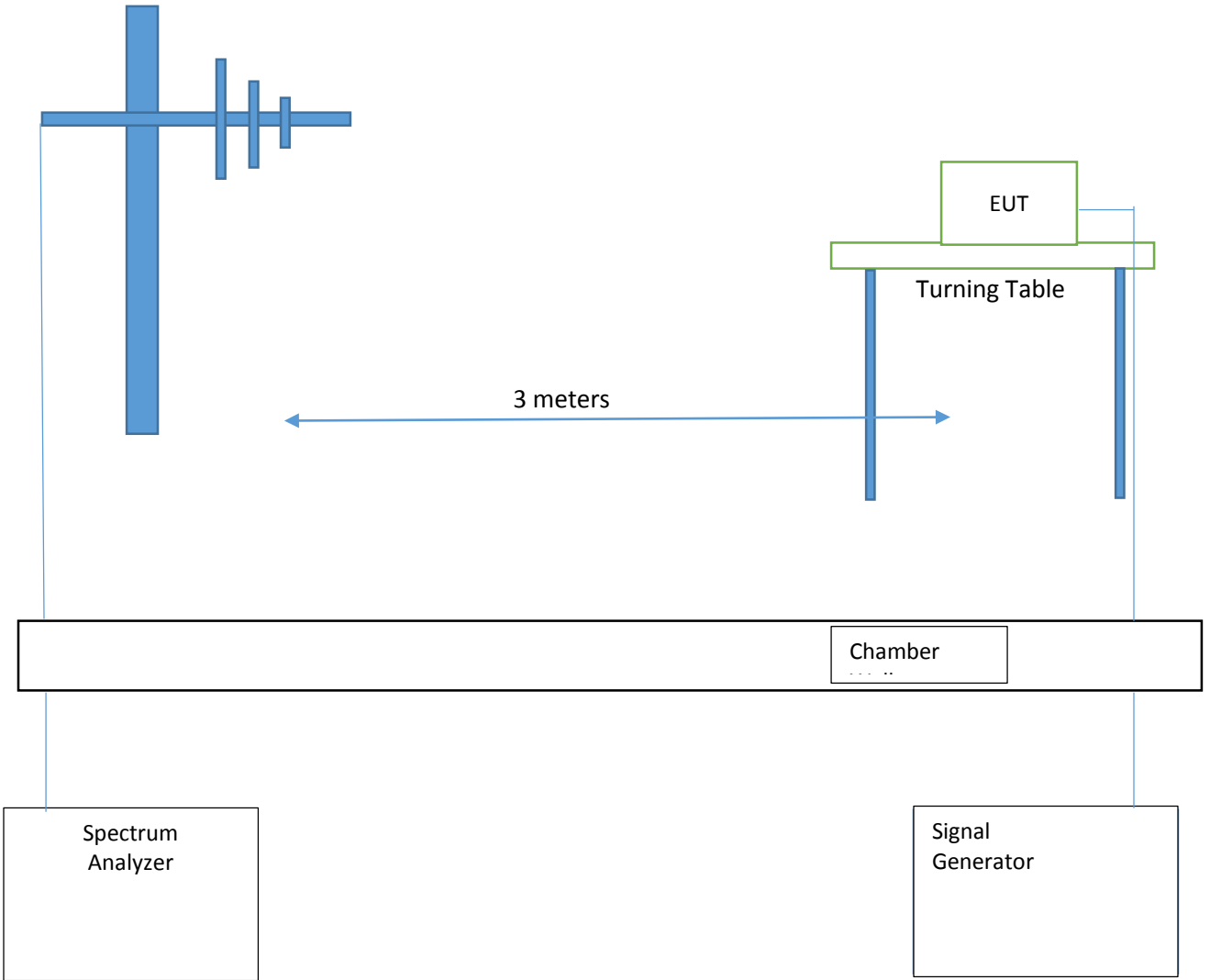


Above 1GHz

Conducted Method Setup

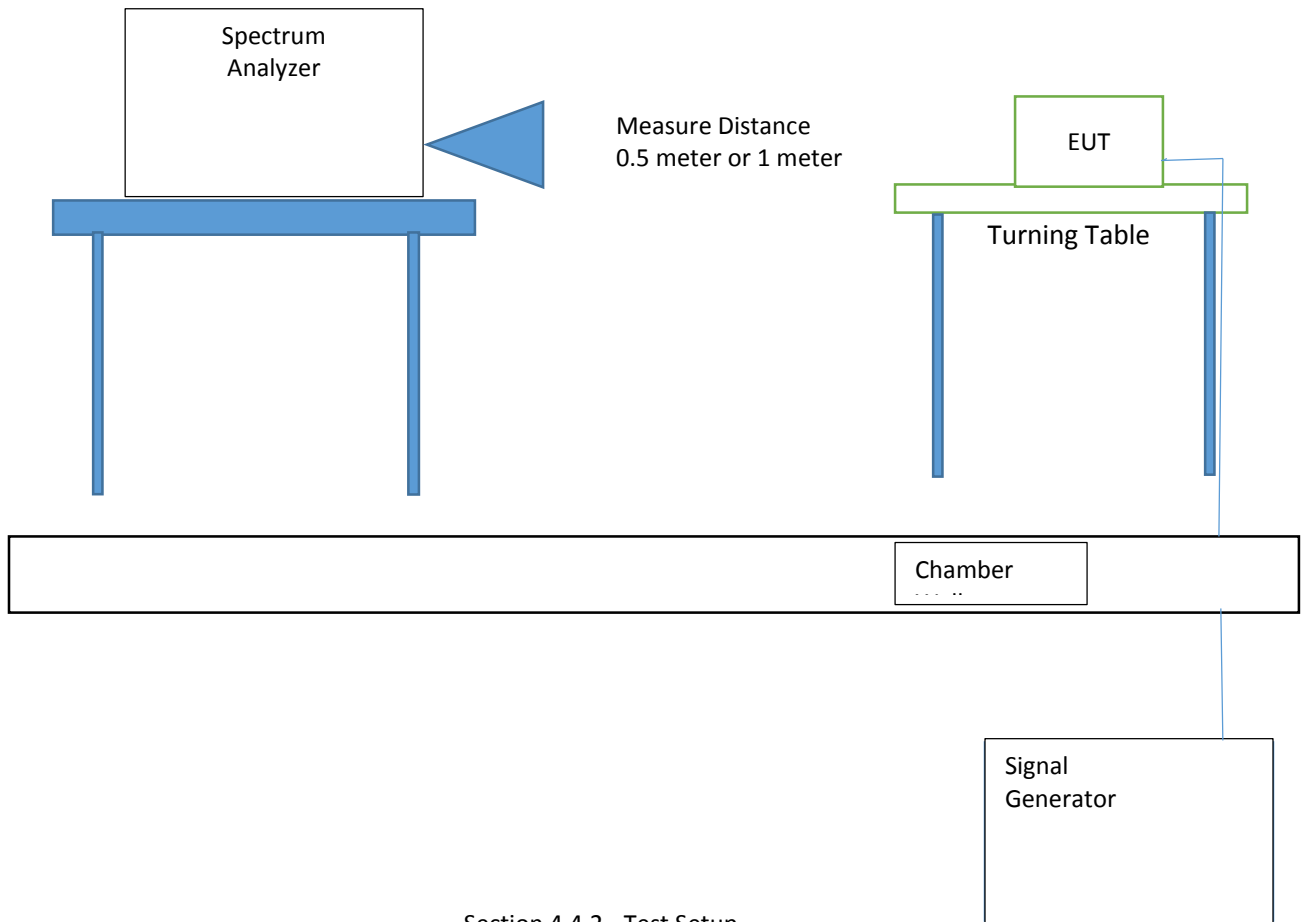


Radiated Method Setup from 30MHz to 40GHz



Section 4.2 and 4.4.2 Test Setup

Radiated Method Setup from 40GHz to 100GHz



Section 4.4.2 - Test Setup

Appendix A: Calibration Certificates

Calibration Report - External Cal

General Information

CKC Report #:	ANT-AN02347-20190306
Firmware Version:	Mandatory for PSAs

Calibrated Equipment Details

The data contained in this calibration report pertains only to the equipment listed below.

Asset #	Description	Manuf.	Model	Serial #
02347	Horn Antenna	OML	M19HWA	U91211-1

Equipment Condition

Returned Condition:	In tolerance
---------------------	--------------

Comments

Final transducer factor includes AF calculated from standard gain horn.

Revision History

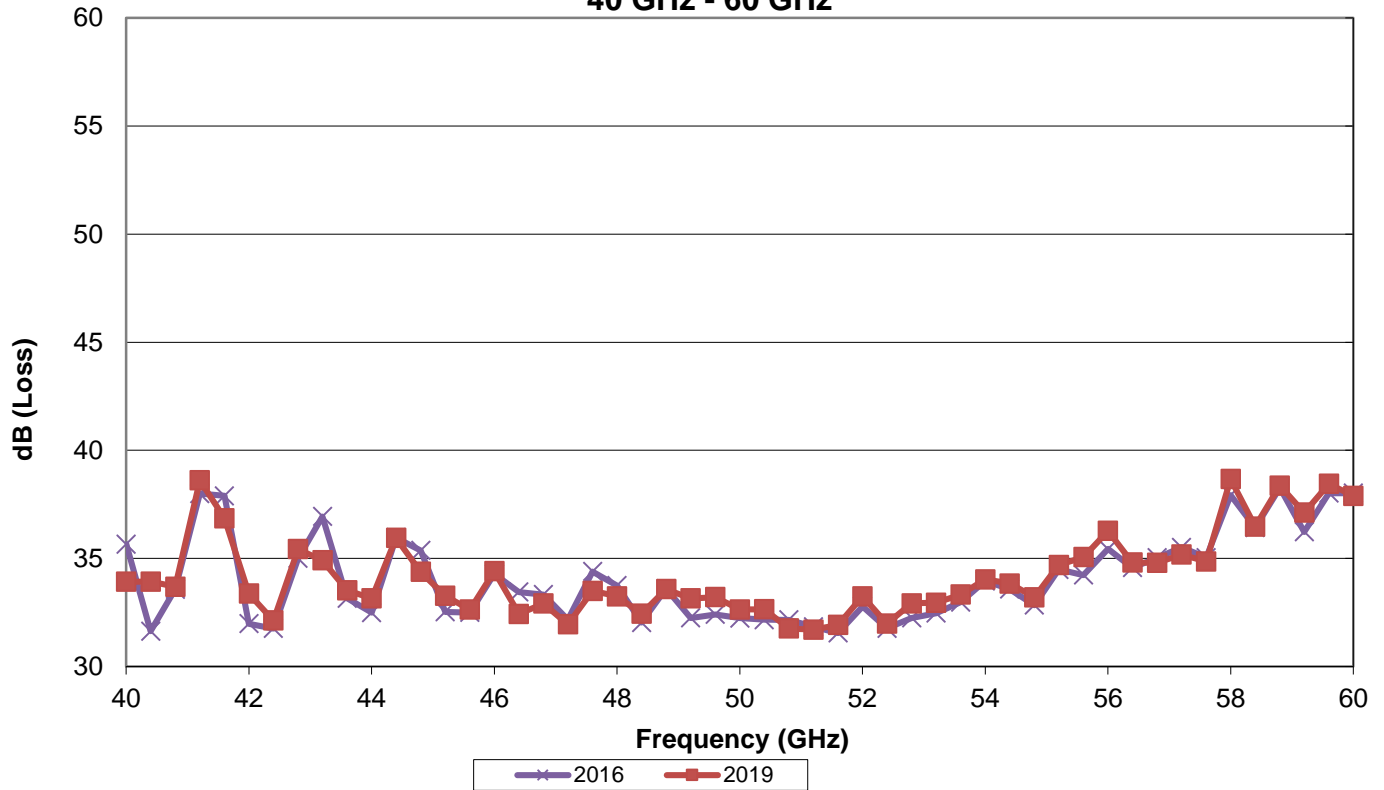
Date	Rev #	Reason for Change
NA	Original	NA

Approvals

	Name
Calibration Engineer:	External Laboratory
Report Prepared By:	Randy Clark
Approved By:	Don Jones

Comparison Plot

**Antenna Factors - Comparison Plots
40 GHz - 60 GHz**



Calibration Data

Mixer conversion loss:

Frequency (GHz)	Conversion Loss Data (dB)
40	33.92
40.4	33.93
40.8	33.69
41.2	38.61
41.6	36.86
42	33.37
42.4	32.13
42.8	35.43
43.2	34.91
43.6	33.53
44	33.15
44.4	35.95
44.8	34.38
45.2	33.27
45.6	32.63
46	34.41

46.4	32.43
46.8	32.91
47.2	31.95
47.6	33.5
48	33.25
48.4	32.44
48.8	33.58
49.2	33.15
49.6	33.21
50	32.64
50.4	32.65
50.8	31.76
51.2	31.71
51.6	31.92
52	33.25
52.4	31.98
52.8	32.92
53.2	32.95
53.6	33.33
54	34.03
54.4	33.84
54.8	33.2
55.2	34.7
55.6	35.06
56	36.27
56.4	34.81
56.8	34.8
57.2	35.18
57.6	34.86
58	38.67
58.4	36.47
58.8	38.37
59.2	37.12
59.6	38.45
60	37.89

Mixer Conversion Loss + Antenna Factor

40,000.000000 73.2
 40,400.000000 73.2
 40,800.000000 73.1
 41,200.000000 78.0
 41,600.000000 76.4
 42,000.000000 72.9
 42,400.000000 71.6

42,800.000000 74.9
43,200.000000 74.4
43,600.000000 73.1
44,000.000000 72.8
44,400.000000 75.6
44,800.000000 74.1
45,200.000000 73.0
45,600.000000 72.4
46,000.000000 74.2
46,400.000000 72.2
46,800.000000 72.8
47,200.000000 71.9
47,600.000000 73.5
48,000.000000 73.3
48,400.000000 72.4
48,800.000000 73.7
49,200.000000 73.3
49,600.000000 73.4
50,000.000000 72.8
50,400.000000 72.9
50,800.000000 72.1
51,200.000000 72.0
51,600.000000 72.3
52,000.000000 73.7
52,400.000000 72.4
52,800.000000 73.4
53,200.000000 73.5
53,600.000000 73.9
54,000.000000 74.6
54,400.000000 74.4
54,800.000000 73.9
55,200.000000 75.4
55,600.000000 75.9
56,000.000000 77.1
56,400.000000 75.6
56,800.000000 75.7
57,200.000000 76.1
57,600.000000 75.9
58,000.000000 79.7
58,400.000000 77.5

58,800.000000 79.5
59,200.000000 78.2
59,600.000000 79.7
60,000.000000 79.1

Calibration Report - External Cal

General Information

CKC Report #:	ANT-AN02348-20190306
Firmware Version:	Mandatory for PSAs

Calibrated Equipment Details

The data contained in this calibration report pertains only to the equipment listed below.

Asset #	Description	Manuf.	Model	Serial #
02348	Horn Antenna	OML	M12HWA	E91211-1

Equipment Condition

Returned Condition:	In tolerance
---------------------	--------------

Comments

Final transducer factor includes AF calculated from standard gain horn.

Revision History

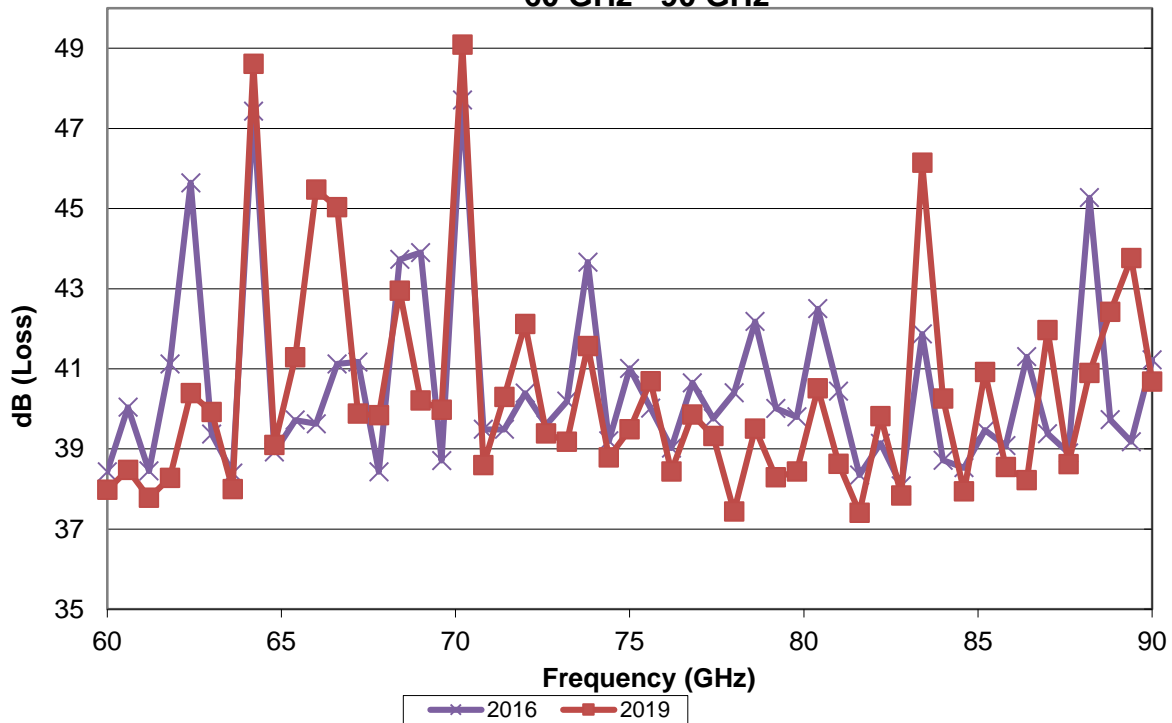
Date	Rev #	Reason for Change
NA	Original	NA

Approvals

	Name
Calibration Engineer:	External Laboratory
Report Prepared By:	Randy Clark
Approved By:	Don Jones

Comparison Plot

**Antenna Factors - Comparison Plots
60 GHz - 90 GHz**



Calibration Data

Mixer Conversion Loss

GHz	Conversion loss
60	37.98
60.6	38.48
61.2	37.78
61.8	38.28
62.4	40.39
63	39.92
63.6	38
64.2	48.61
64.8	39.1
65.4	41.29
66	45.47
66.6	45.03
67.2	39.88
67.8	39.84
68.4	42.95
69	40.21

69.6	39.98
70.2	49.09
70.8	38.6
71.4	40.3
72	42.12
72.6	39.39
73.2	39.18
73.8	41.57
74.4	38.79
75	39.49
75.6	40.69
76.2	38.44
76.8	39.86
77.4	39.32
78	37.44
78.6	39.51
79.2	38.29
79.8	38.44
80.4	40.51
81	38.63
81.6	37.41
82.2	39.82
82.8	37.84
83.4	46.14
84	40.26
84.6	37.94
85.2	40.92
85.8	38.55
86.4	38.22
87	41.97
87.6	38.62
88.2	40.9
88.8	42.42
89.4	43.76
90	40.68

Mixer Conversion Loss + Antenna Factor

60,000.000000 80.8
60,600.000000 81.3
61,200.000000 80.7
61,800.000000 81.2
62,400.000000 83.4
63,000.000000 82.9
63,600.000000 81.0
64,200.000000 91.7

64,800.000000 82.2
65,400.000000 84.4
66,000.000000 88.6
66,600.000000 88.1
67,200.000000 83.1
67,800.000000 83.0
68,400.000000 86.3
69,000.000000 83.5
69,600.000000 83.3
70,200.000000 92.5
70,800.000000 82.0
71,400.000000 83.8
72,000.000000 85.6
72,600.000000 82.9
73,200.000000 82.7
73,800.000000 85.1
74,400.000000 82.4
75,000.000000 83.1
75,600.000000 84.3
76,200.000000 82.1
76,800.000000 83.6
77,400.000000 83.1
78,000.000000 81.2
78,600.000000 83.3
79,200.000000 82.2
79,800.000000 82.3
80,400.000000 84.5
81,000.000000 82.6
81,600.000000 81.4
82,200.000000 83.9
82,800.000000 81.9
83,400.000000 90.3
84,000.000000 84.5
84,600.000000 82.1
85,200.000000 85.2
85,800.000000 82.9
86,400.000000 82.6
87,000.000000 86.4
87,600.000000 83.0
88,200.000000 85.4



88,800.000000 86.9

89,400.000000 88.4

90,000.000000 85.3

Calibration Report - External Cal

General Information

CKC Report #:	ANT-AN02349-20190306
Firmware Version:	Mandatory for PSAs

Calibrated Equipment Details

The data contained in this calibration report pertains only to the equipment listed below.

Asset #	Description	Manuf.	Model	Serial #
02349	Horn Antenna	OML	M08HWA	F91211-2

Equipment Condition

Returned Condition:	In tolerance
---------------------	--------------

Comments

Final transducer factor includes AF calculated from standard gain horn.

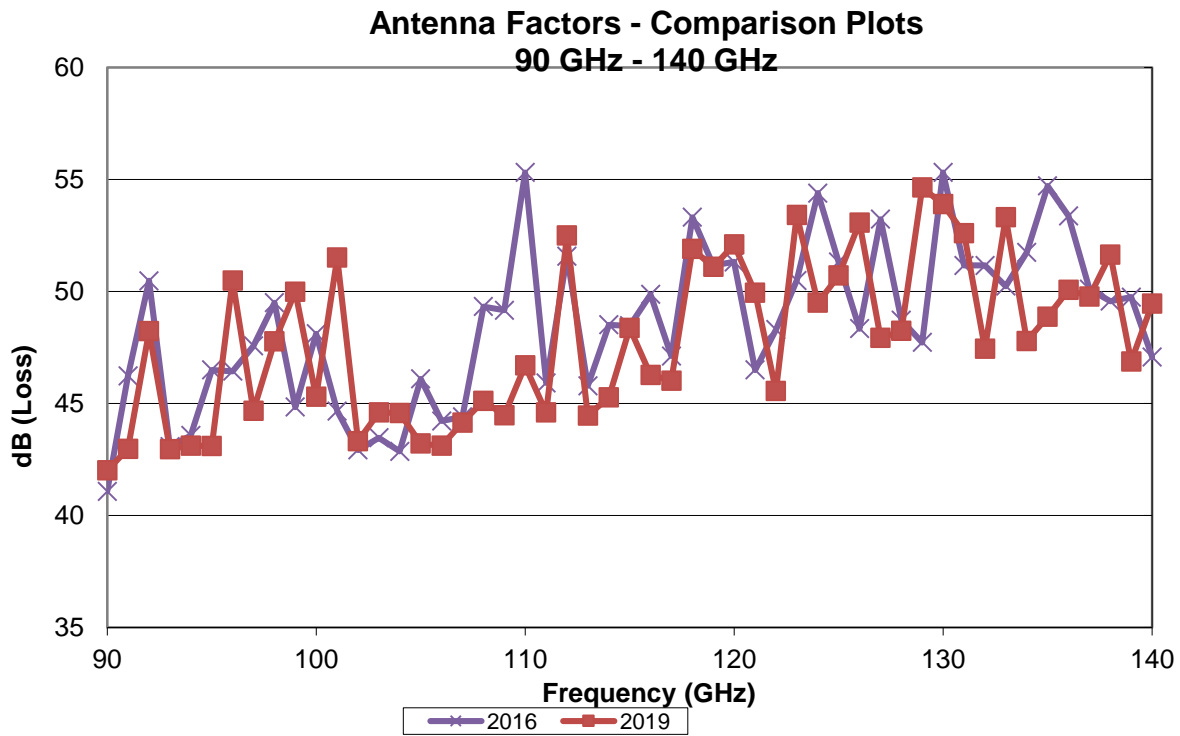
Revision History

Date	Rev #	Reason for Change
NA	Original	NA

Approvals

	Name
Calibration Engineer:	External Laboratory
Report Prepared By:	Randy Clark
Approved By:	Don Jones

Comparison Plot



Calibration Data

Mixer Conversion Loss

Frequency (GHz)	Conversion Loss (dB)
90	42.01
91	42.98
92	48.23
93	42.96
94	43.12
95	43.1
96	50.49
97	44.68
98	47.77
99	49.99
100	45.3
101	51.51
102	43.32
103	44.6
104	44.58
105	43.21
106	43.11
107	44.15

108	45.12
109	44.47
110	46.7
111	44.6
112	52.5
113	44.46
114	45.28
115	48.37
116	46.28
117	46.02
118	51.9
119	51.1
120	52.1
121	49.95
122	45.56
123	53.41
124	49.5
125	50.71
126	53.08
127	47.93
128	48.24
129	54.64
130	53.9
131	52.6
132	47.45
133	53.31
134	47.79
135	48.88
136	50.07
137	49.78
138	51.65
139	46.88
140	49.46

Mixer Conversion Loss + Antenna Factor

90,000.000000	88.4
91,000.000000	89.4
92,000.000000	94.7
93,000.000000	89.5
94,000.000000	89.7
95,000.000000	89.7
96,000.000000	97.1
97,000.000000	91.4
98,000.000000	94.5

99,000.000000 96.7
100,000.000000 92.0
101,000.000000 98.2
102,000.000000 90.1
103,000.000000 91.4
104,000.000000 91.5
105,000.000000 90.1
106,000.000000 90.0
107,000.000000 91.2
108,000.000000 92.1
109,000.000000 91.6
110,000.000000 93.8
111,000.000000 91.7
112,000.000000 99.7
113,000.000000 91.7
114,000.000000 92.6
115,000.000000 95.7
116,000.000000 93.6
117,000.000000 93.4
118,000.000000 99.3
119,000.000000 98.6
120,000.000000 99.6
121,000.000000 97.5
122,000.000000 93.2
123,000.000000 101.0
124,000.000000 97.2
125,000.000000 98.4
126,000.000000 100.8
127,000.000000 95.7
128,000.000000 96.0
129,000.000000 102.5
130,000.000000 101.8
131,000.000000 100.5
132,000.000000 95.5
133,000.000000 101.3
134,000.000000 95.9
135,000.000000 97.0
136,000.000000 98.2
137,000.000000 98.0
138,000.000000 99.9



139,000.000000 95.2

140,000.000000 97.8

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Uncertainties reported are worst case for all CKC Laboratories’ sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.