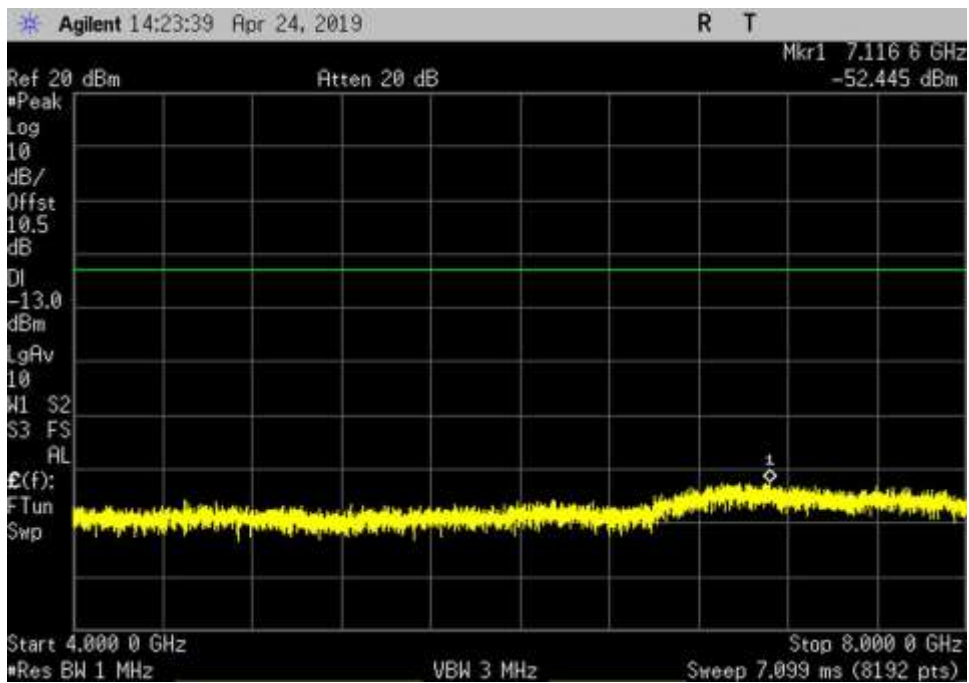
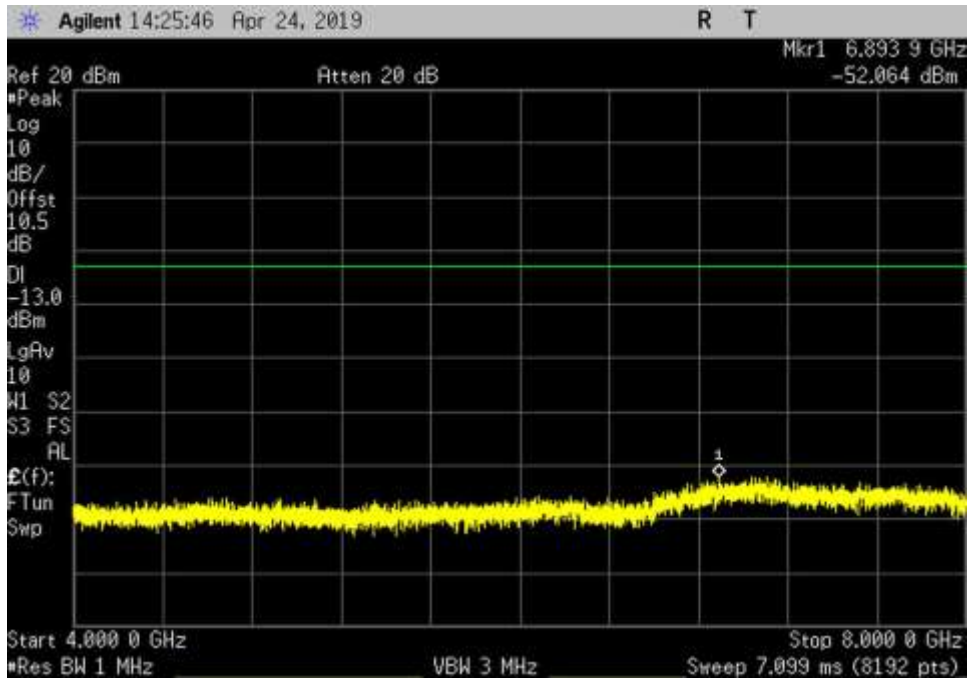


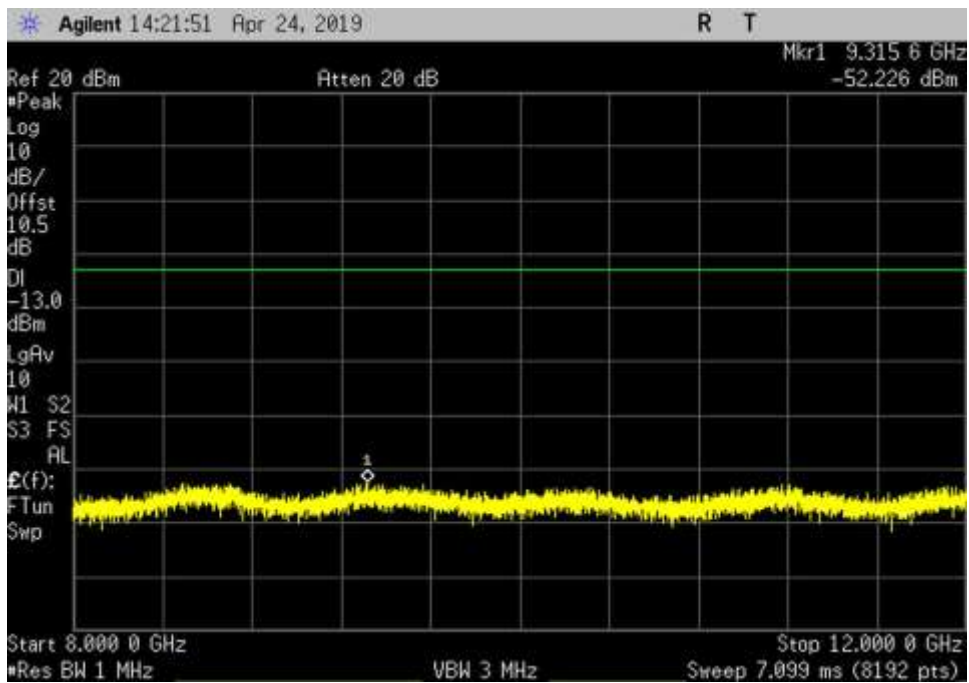
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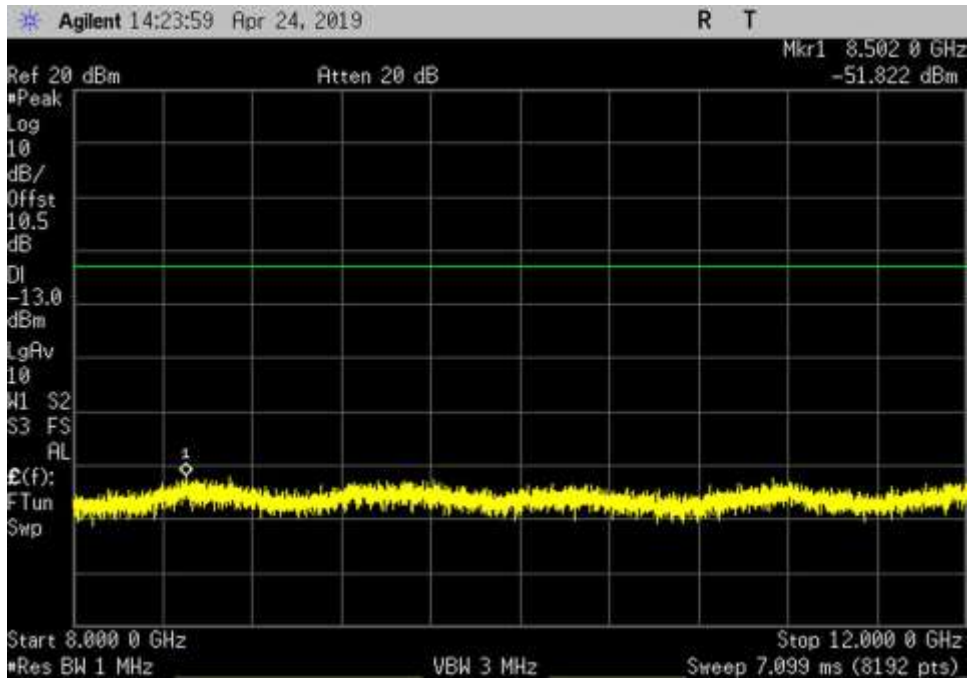
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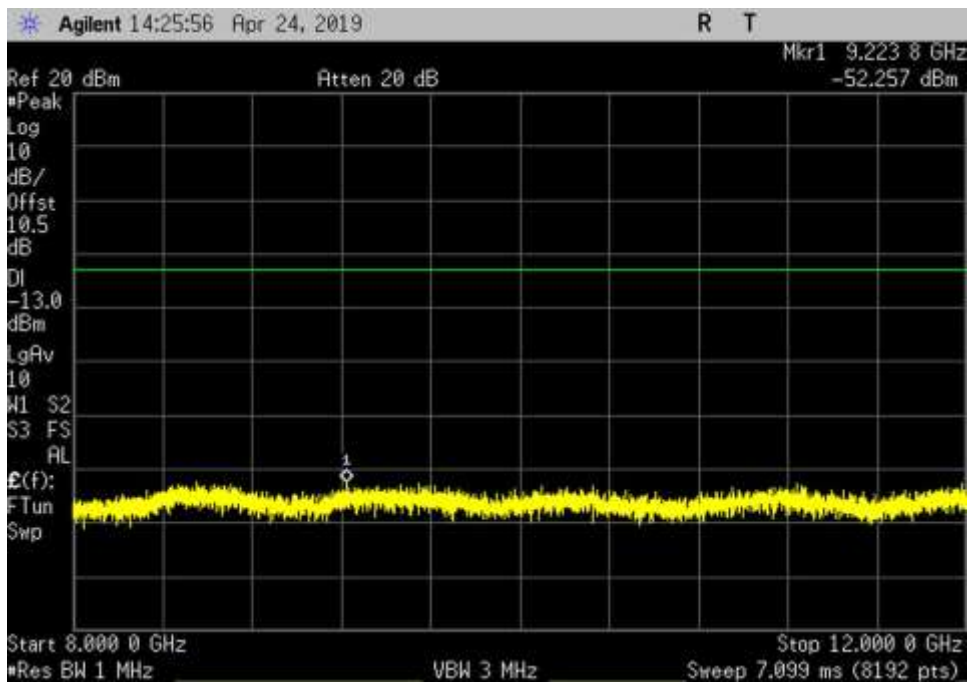
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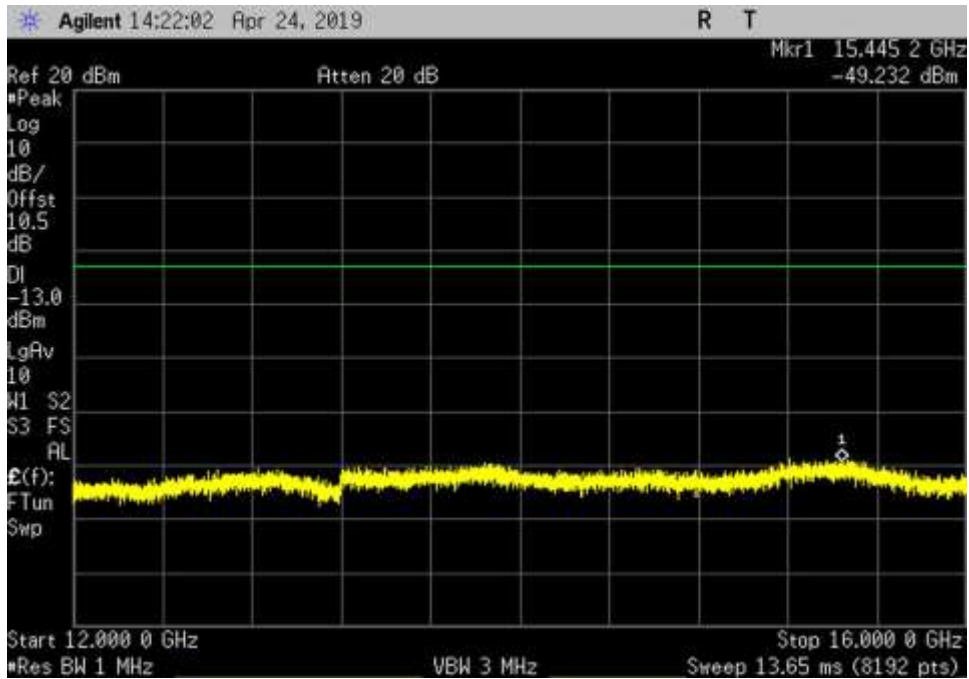
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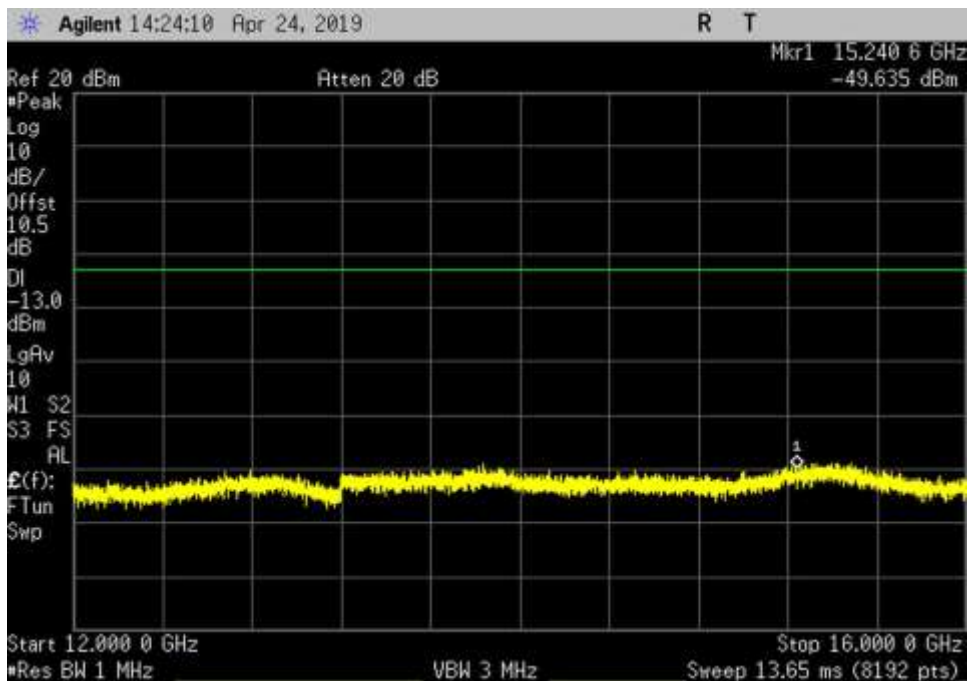
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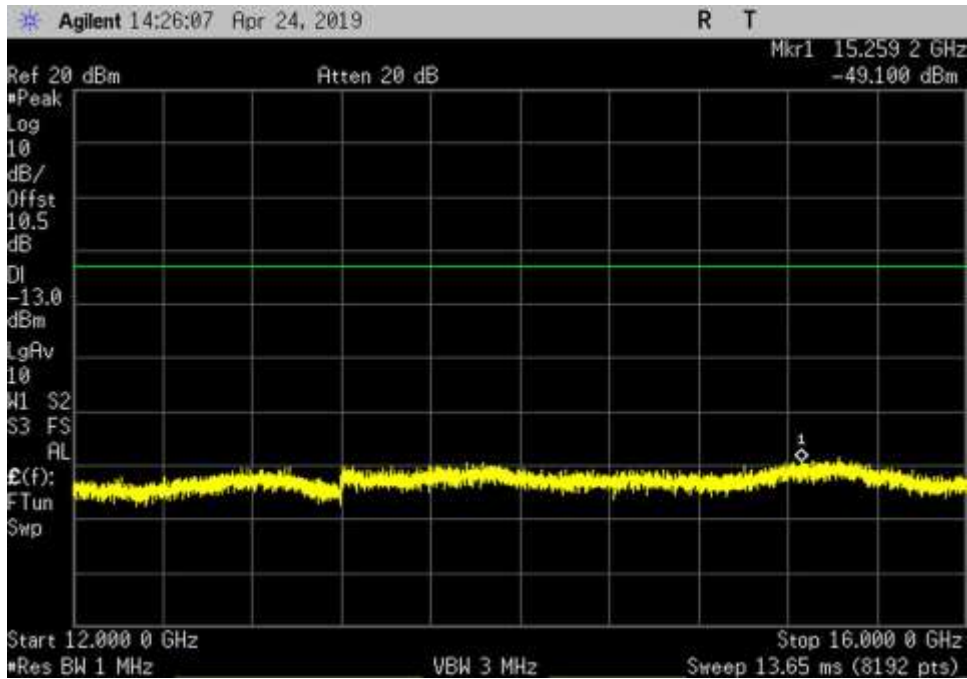
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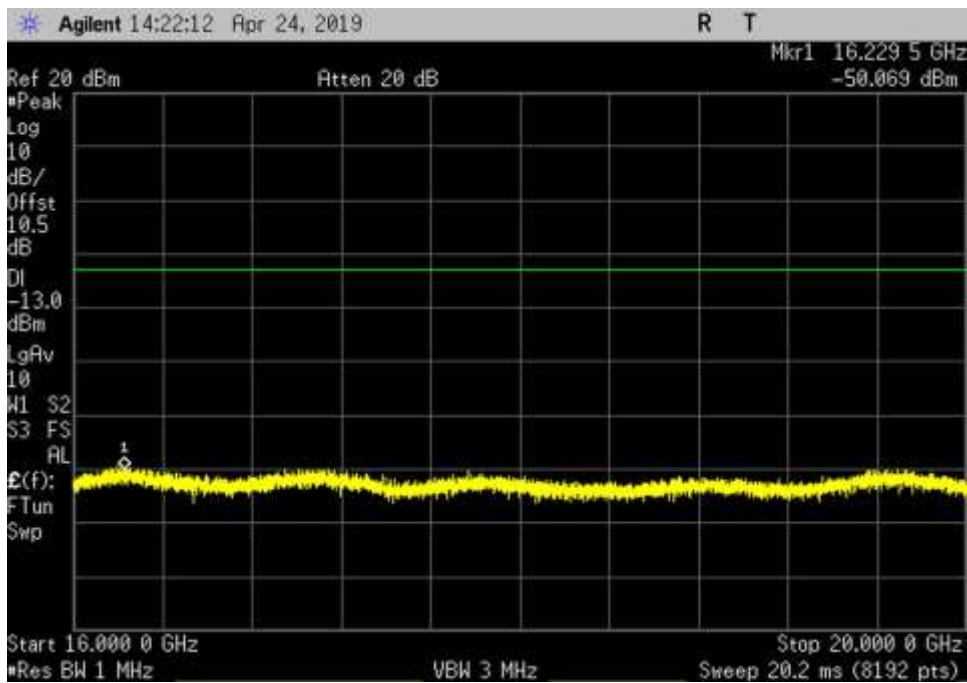
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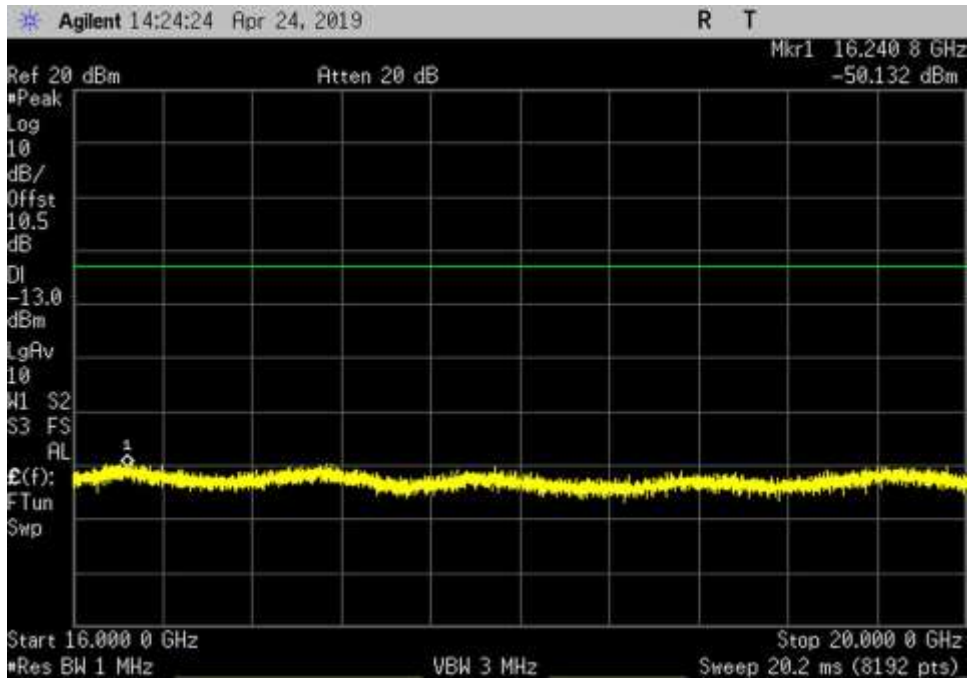
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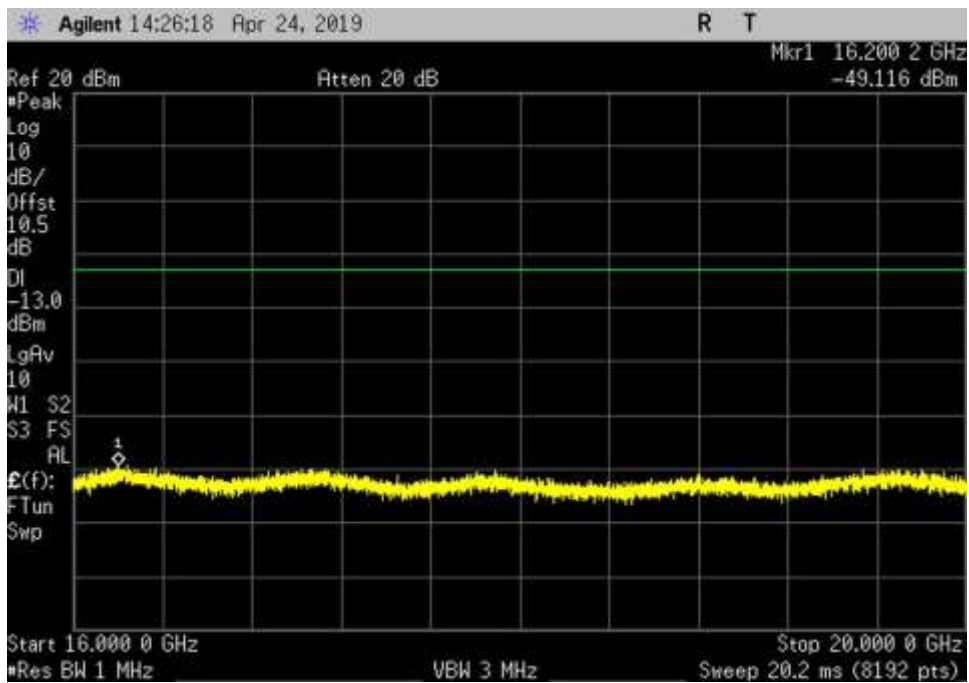
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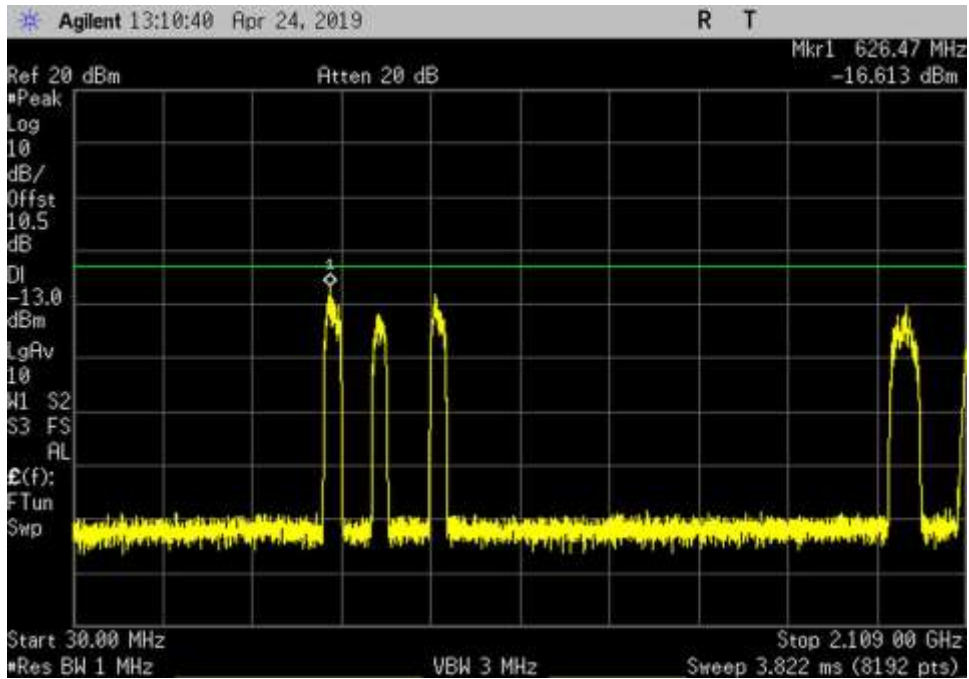
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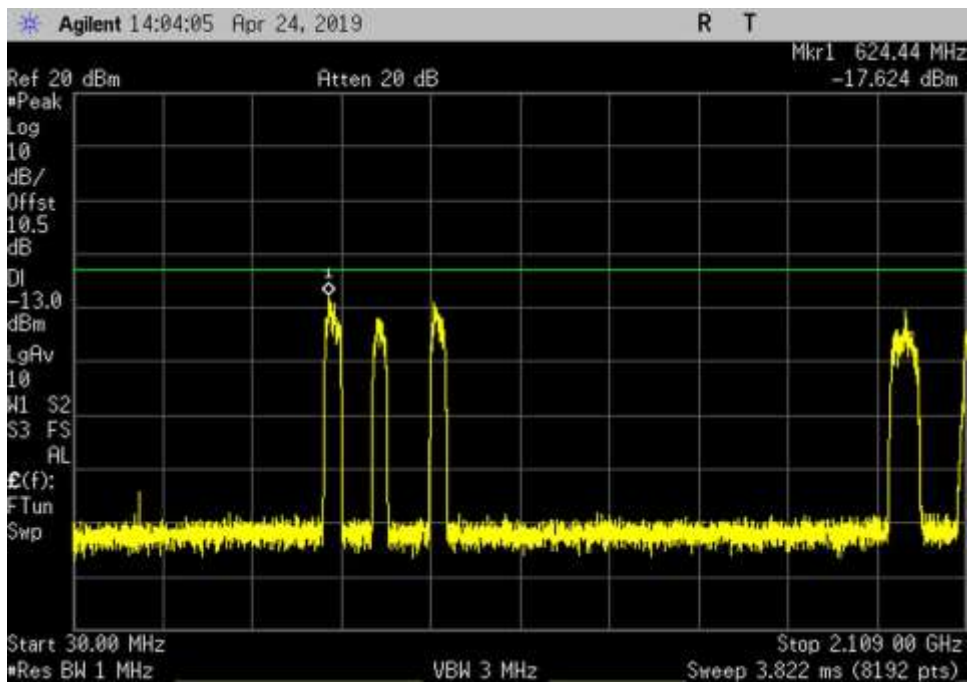
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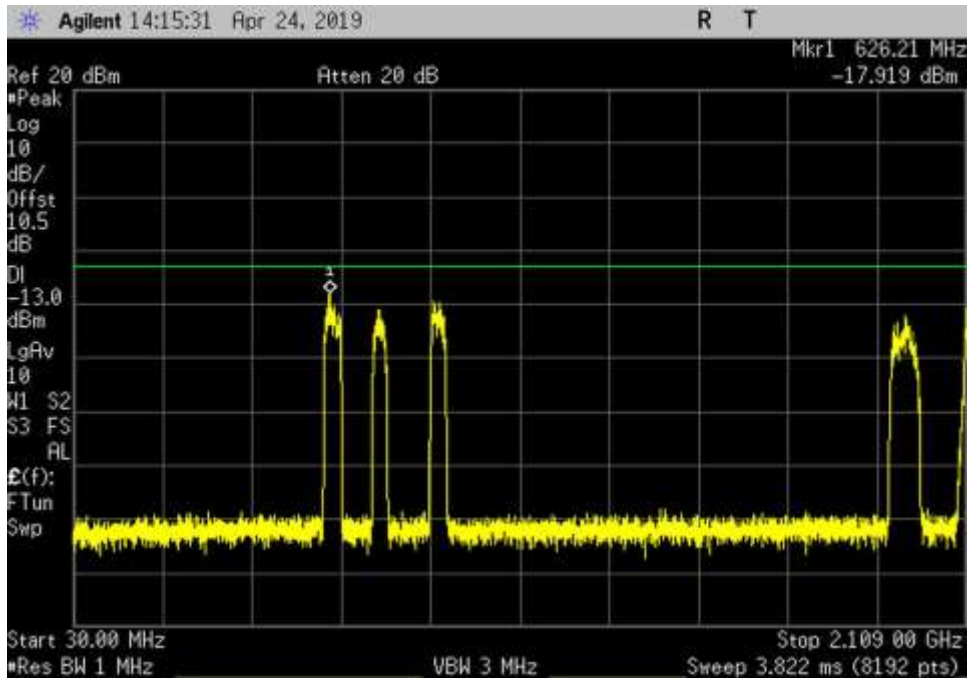
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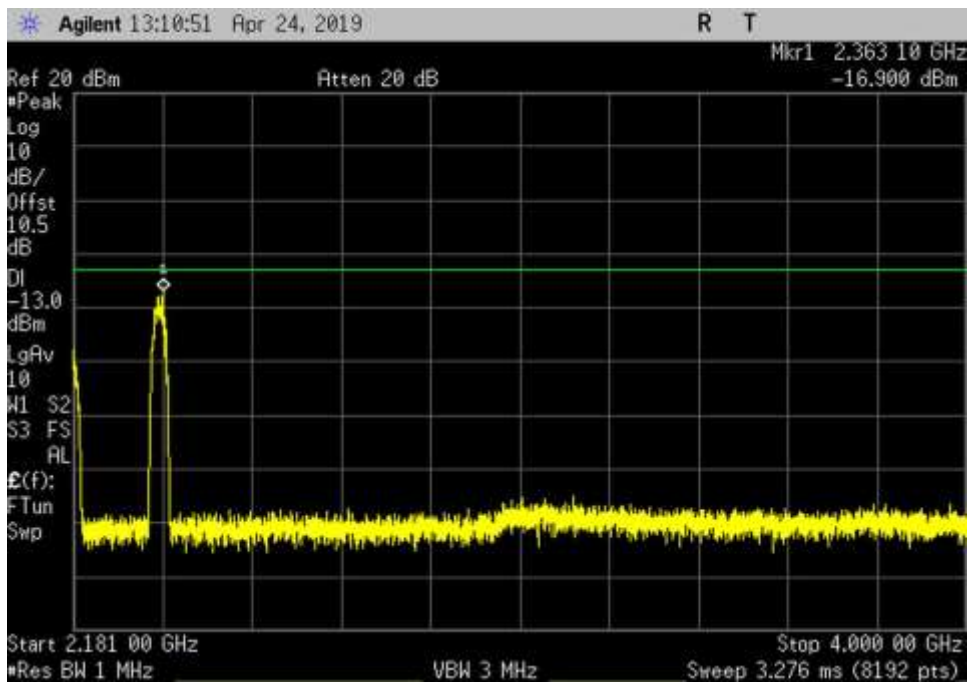
DL_2110-2155_GSM_30-2109MHz_LC



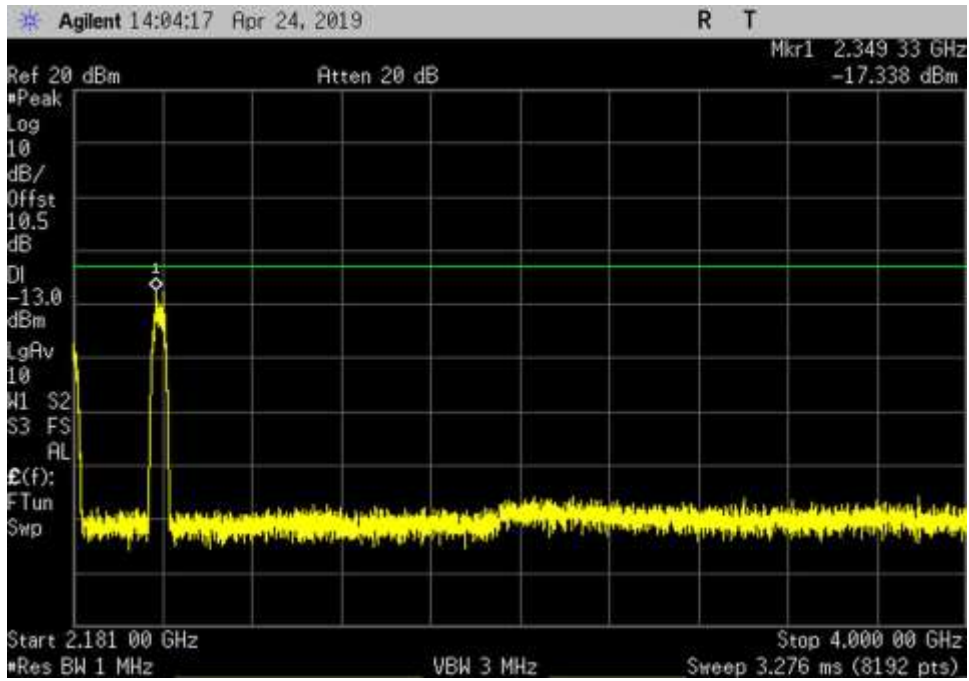
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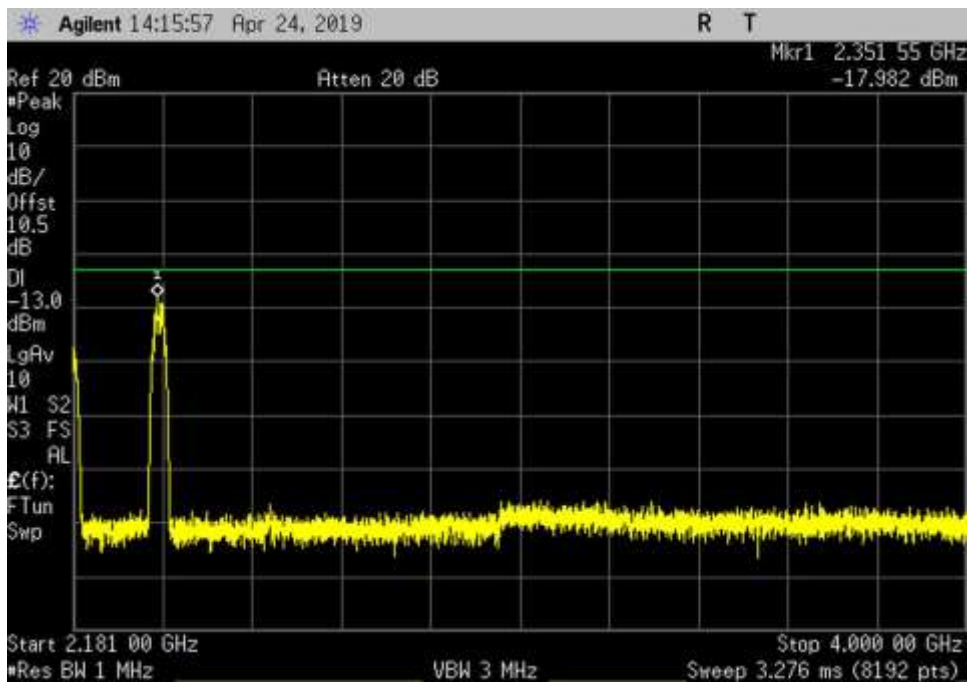
DL_2110-2155_GSM_30-2109MHz_HC



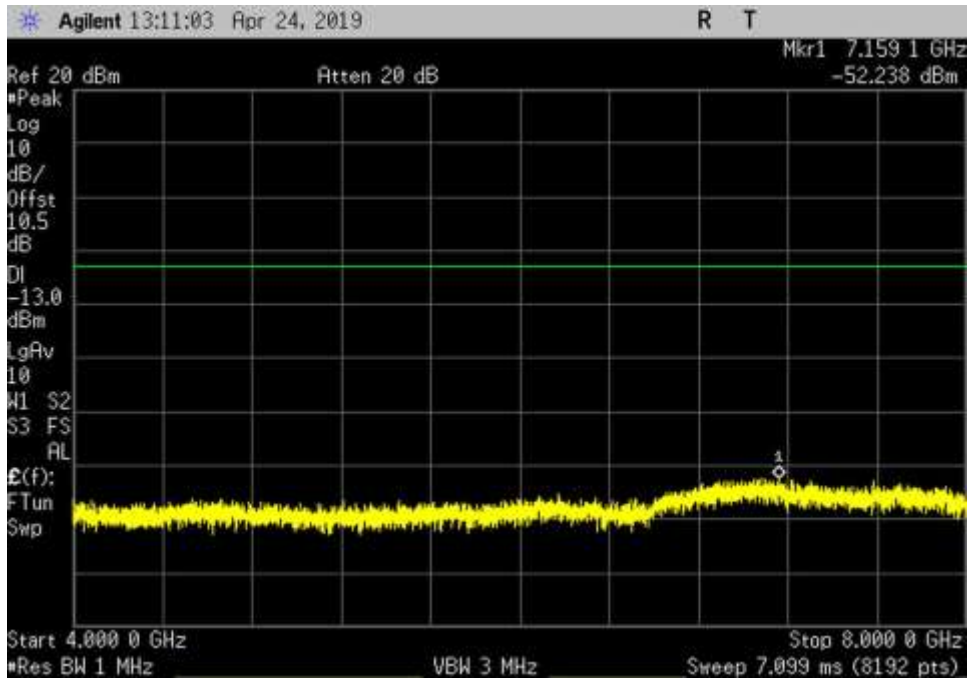
DL_2110-2155_GSM_2181-4000MHz_LC



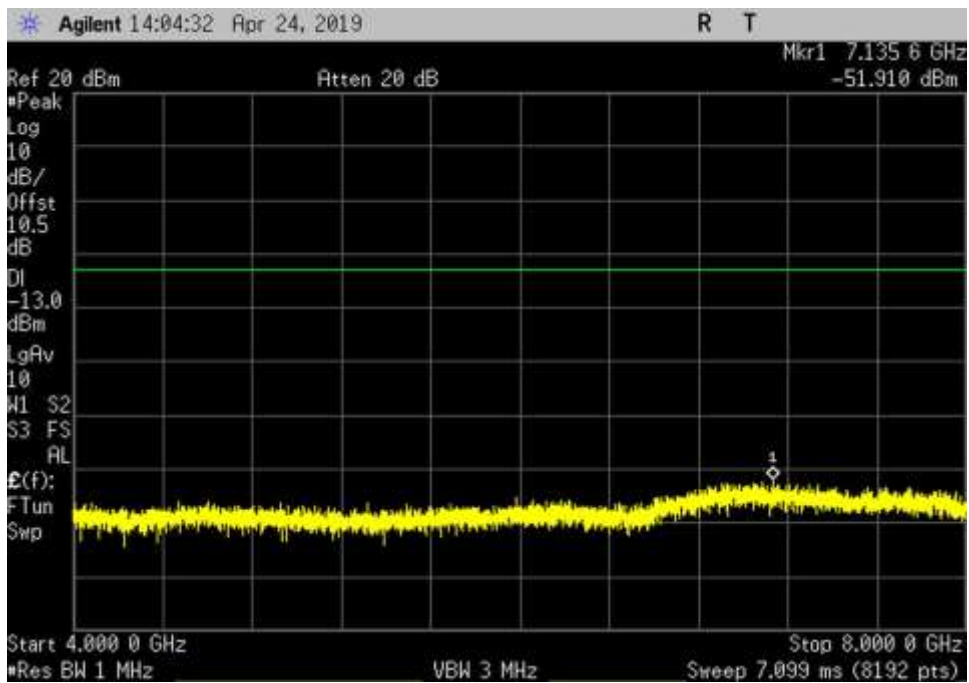
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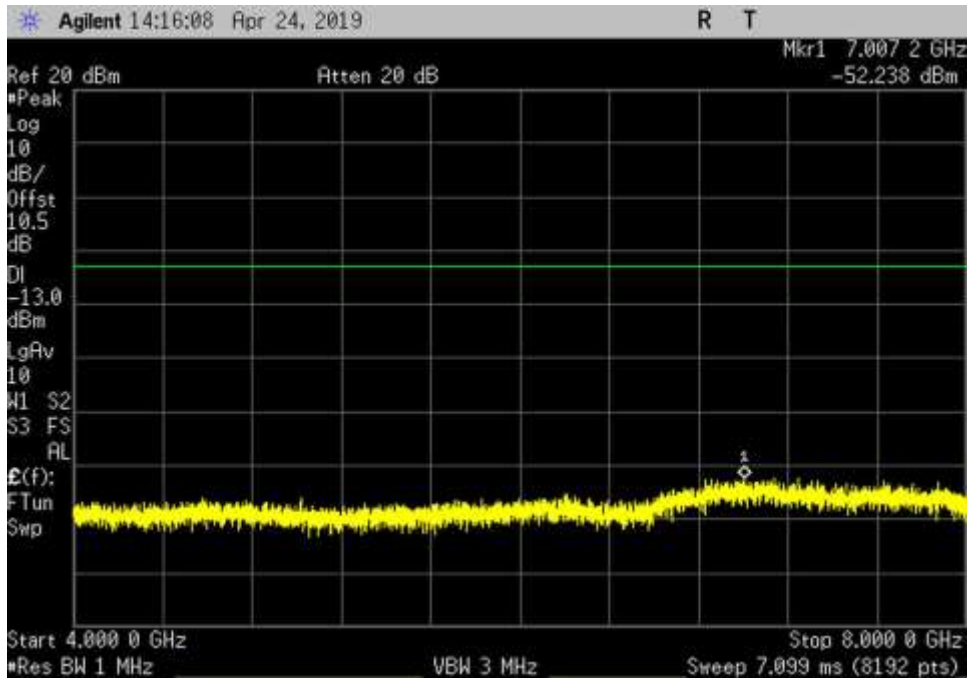
DL_2110-2155_GSM_2181-4000MHz_HC



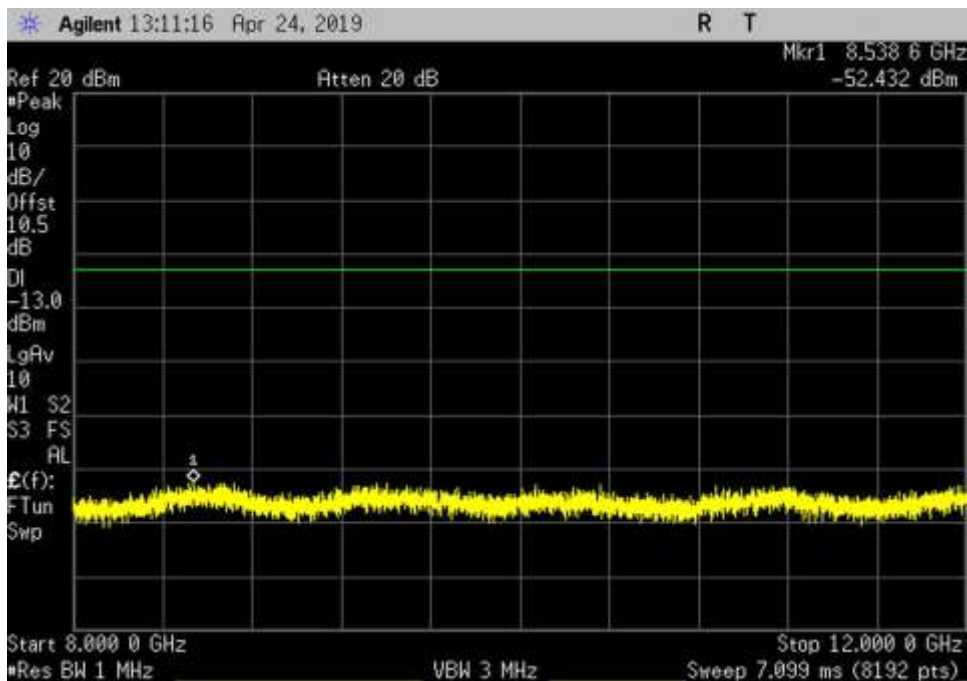
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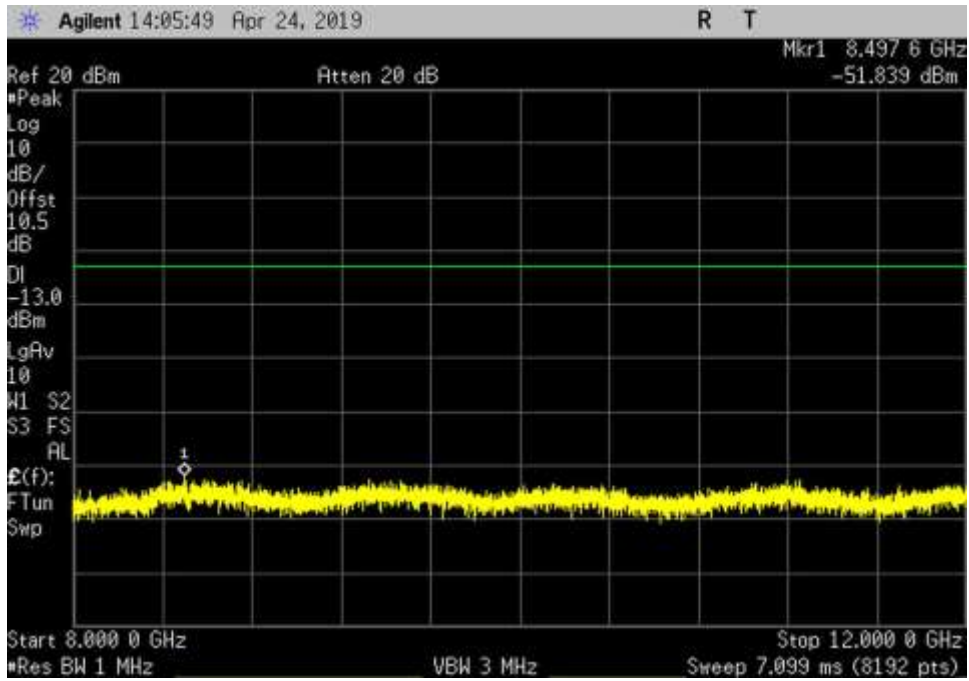
DL_2110-2155_GSM_4000-8000MHz_MC



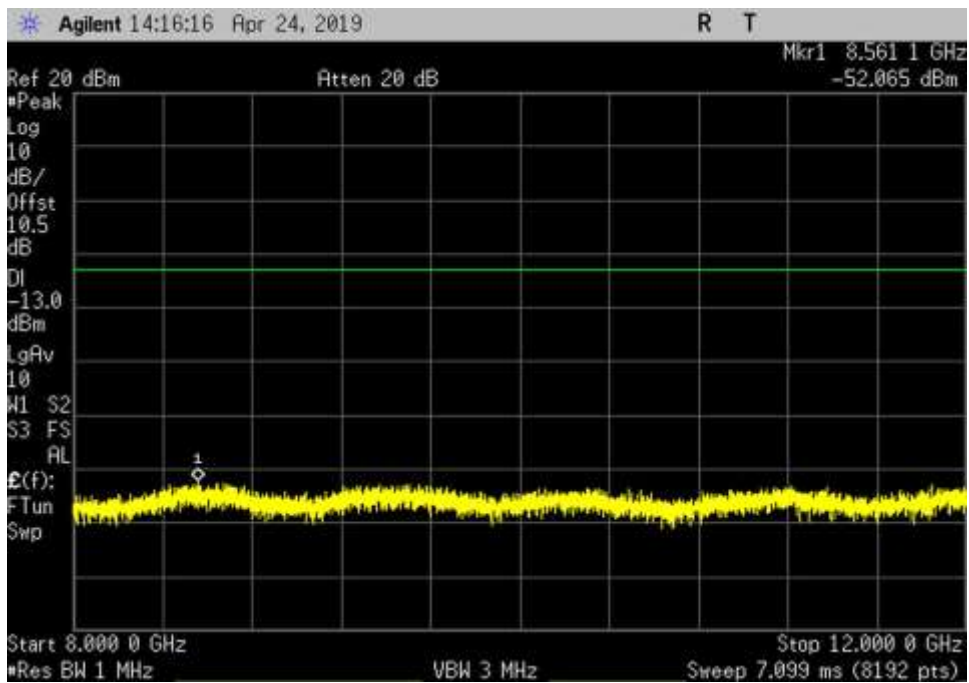
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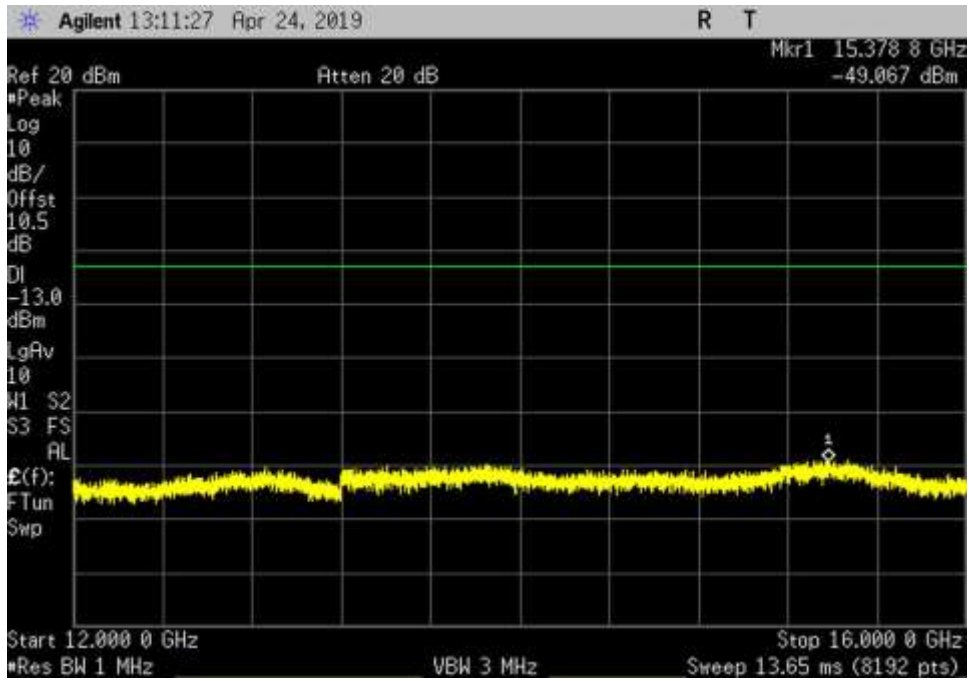
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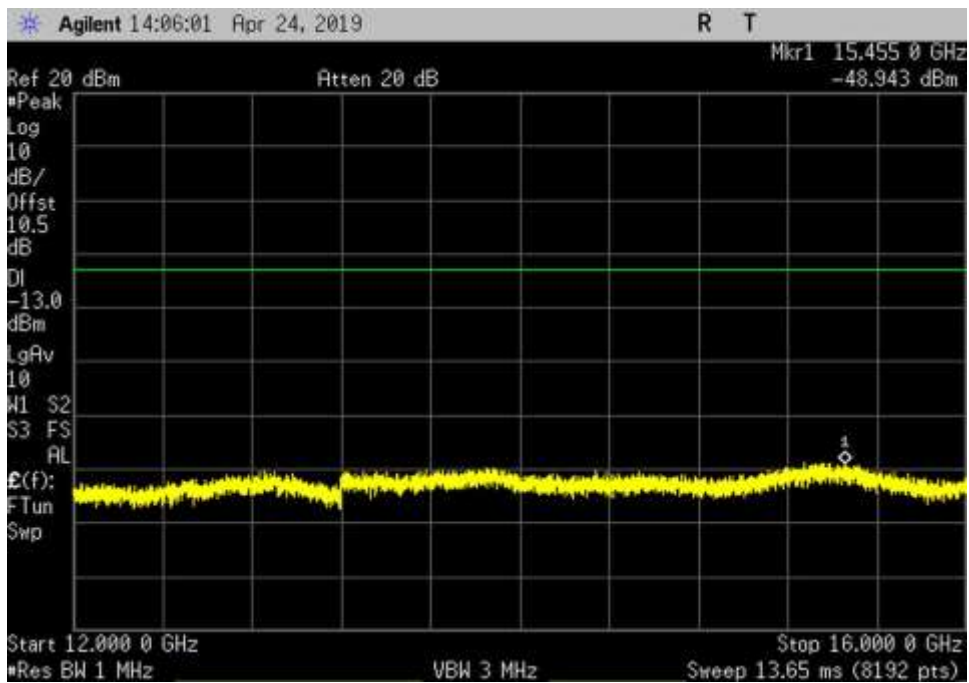
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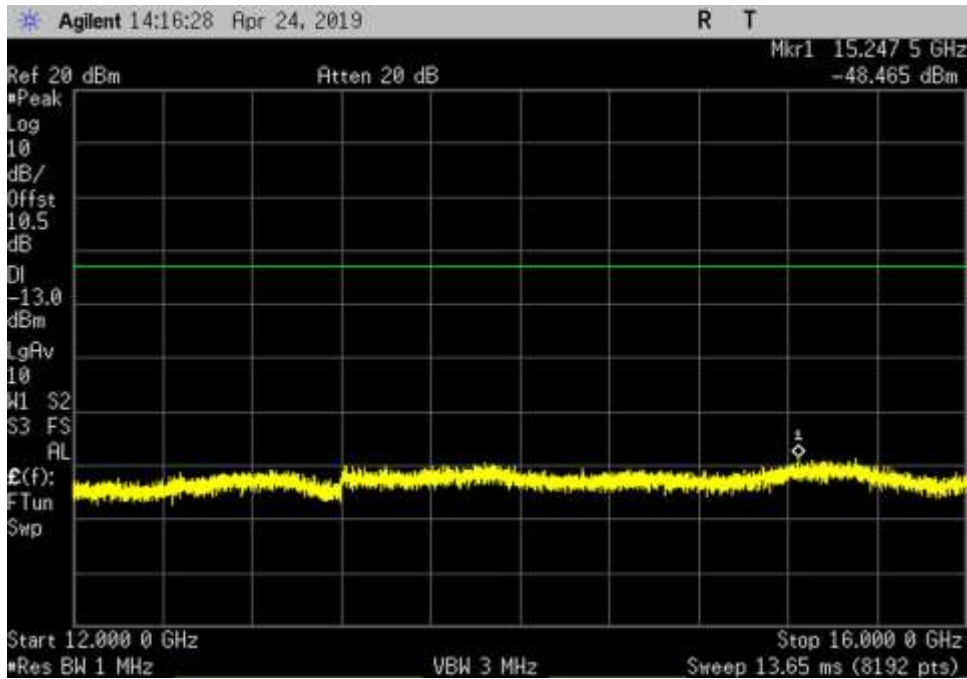
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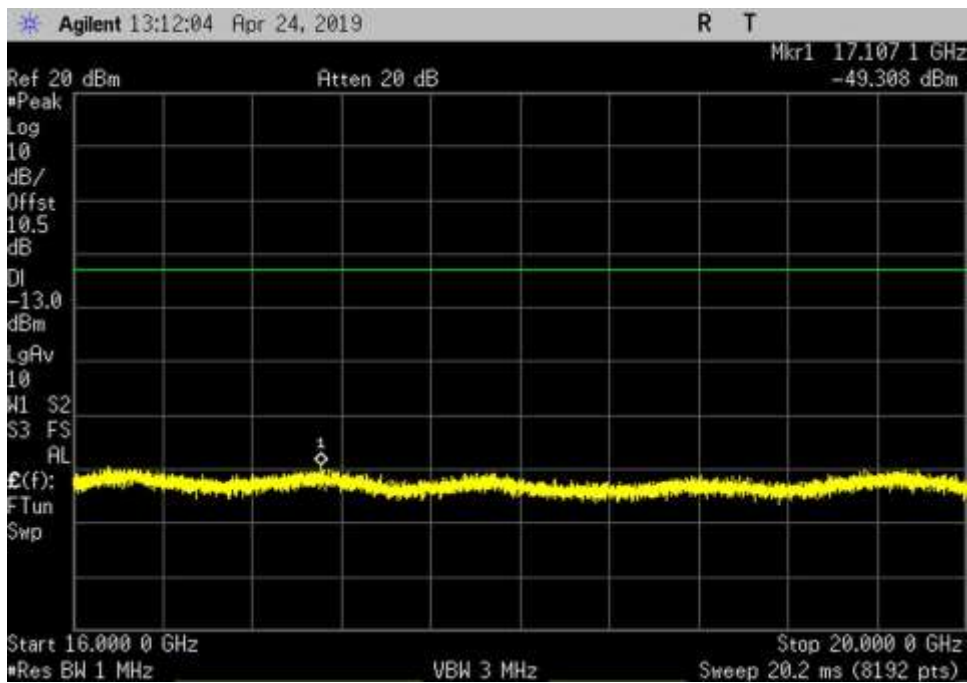
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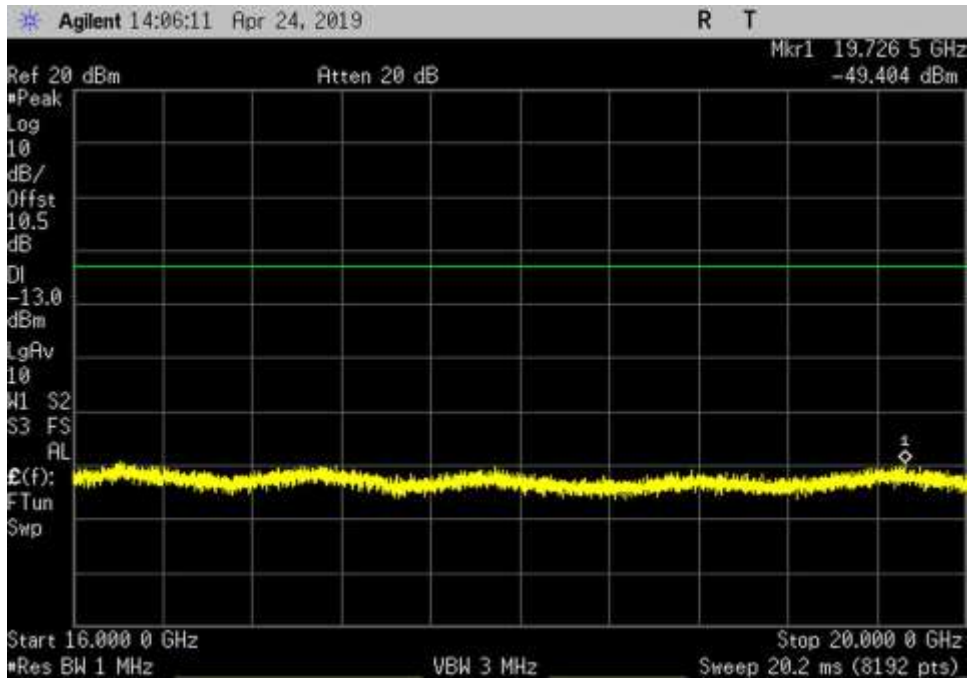
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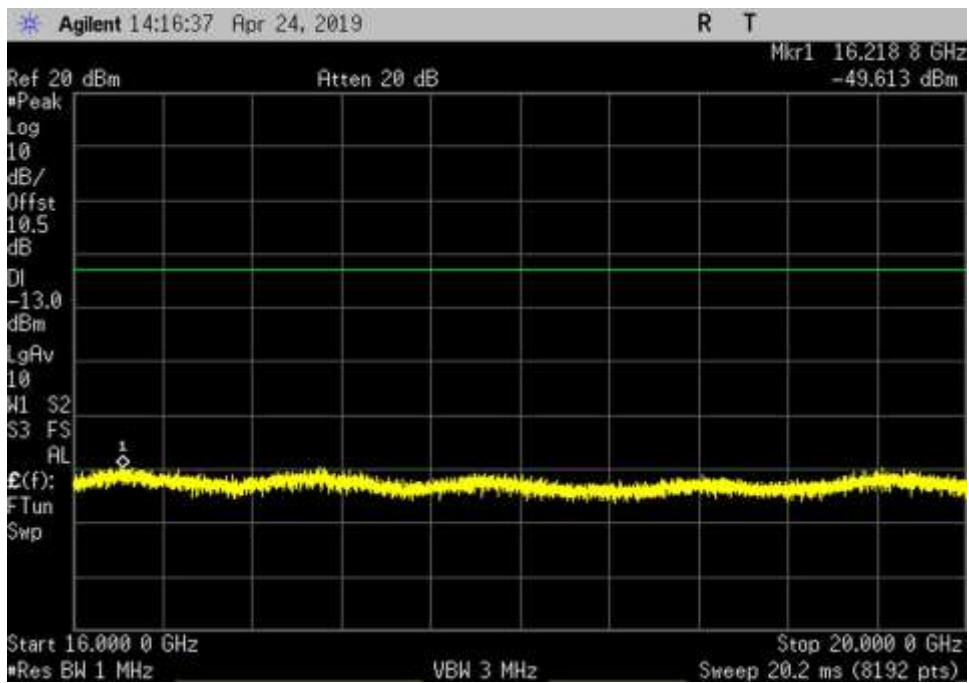
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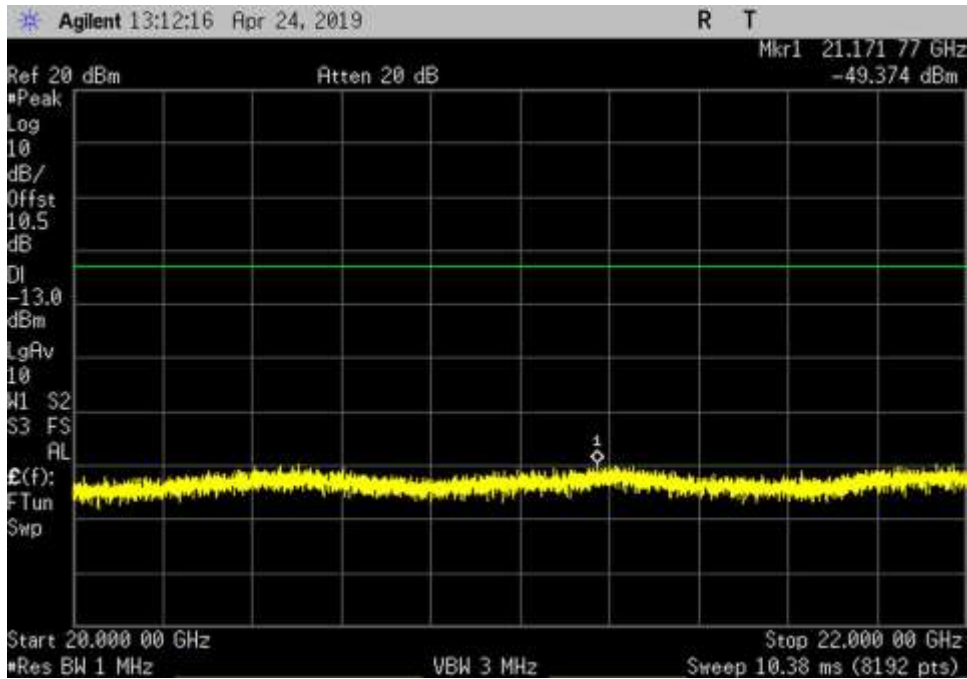
DL_2110-2155_GSM_16000-20000MHz_LC



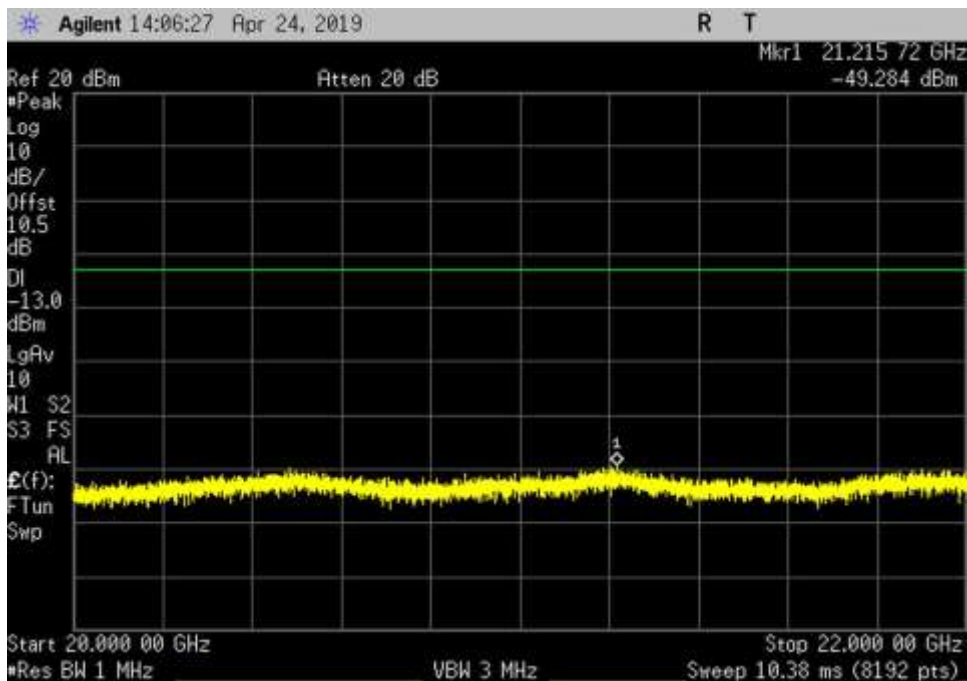
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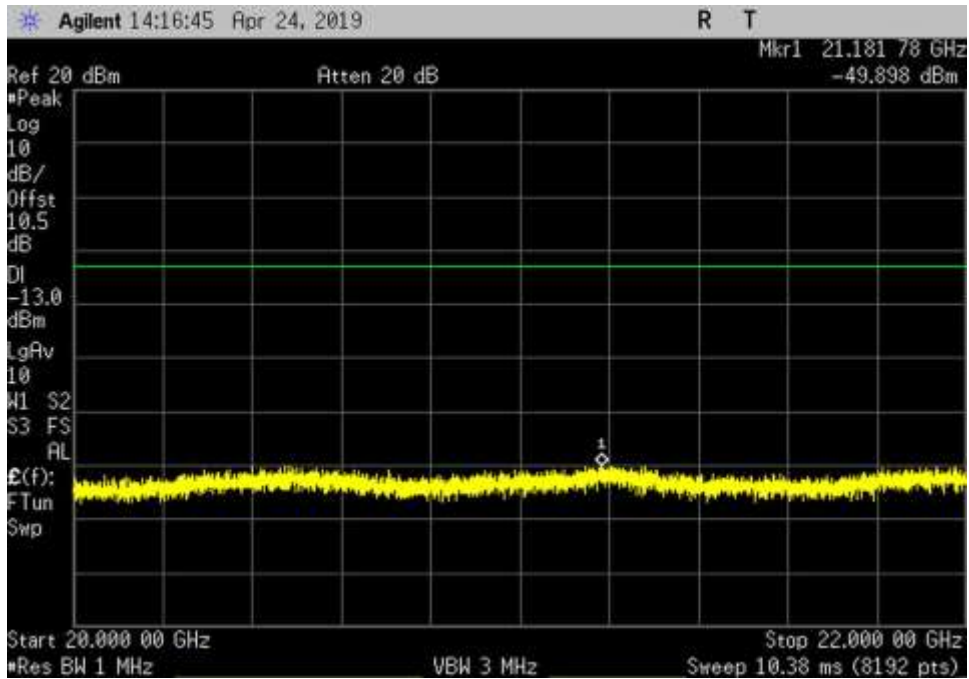
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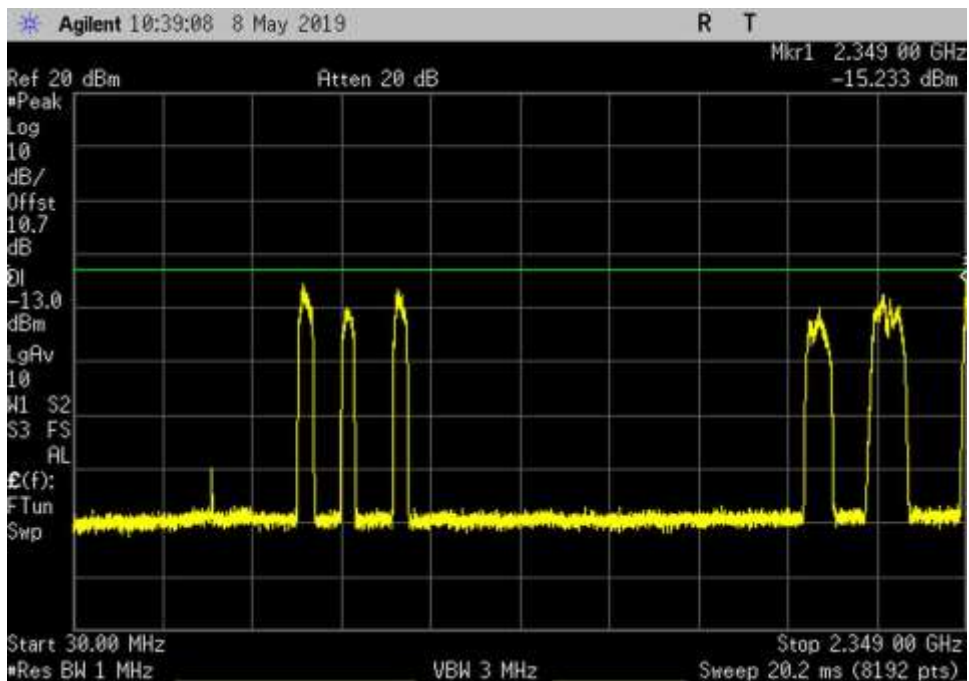
DL_2110-2155_GSM_20000- 22000MHz_LC



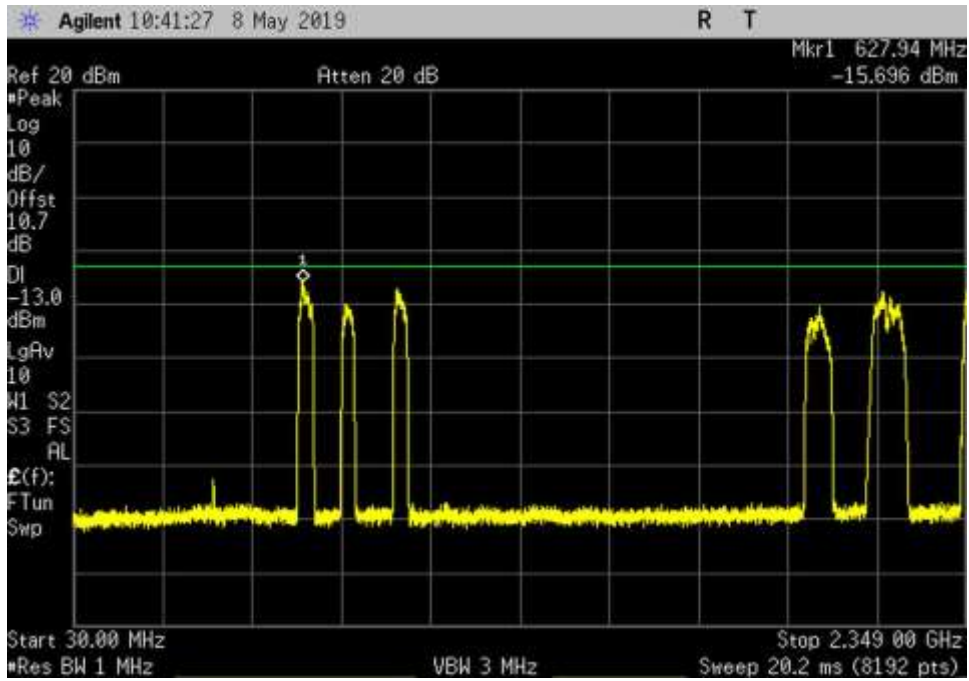
DL_2110-2155_GSM_20000- 22000MHz_MC



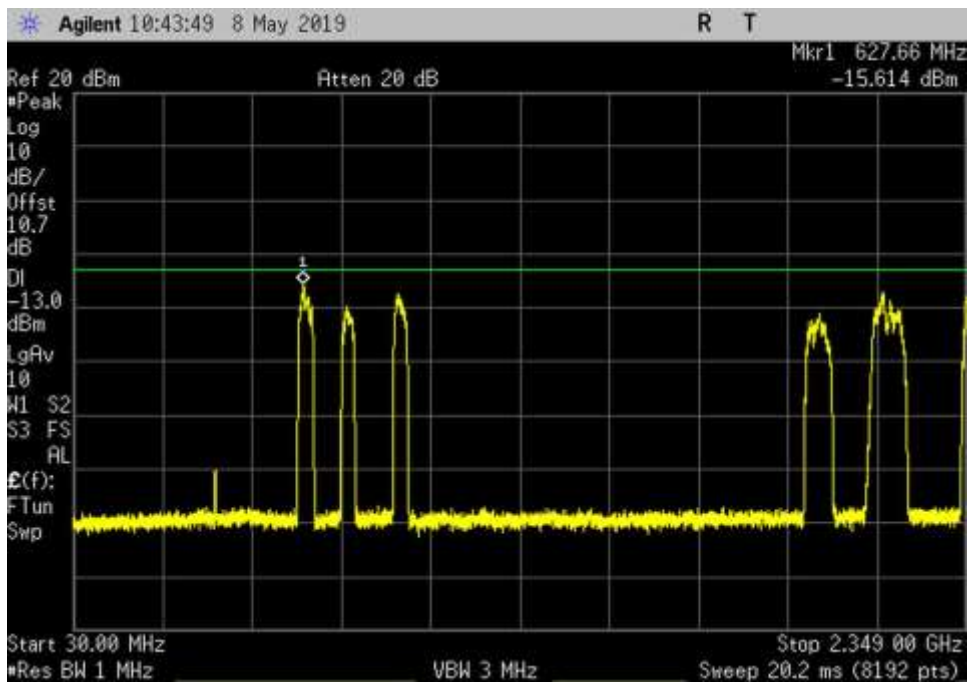
DL_2110-2155_GSM_20000-22000MHz_HC



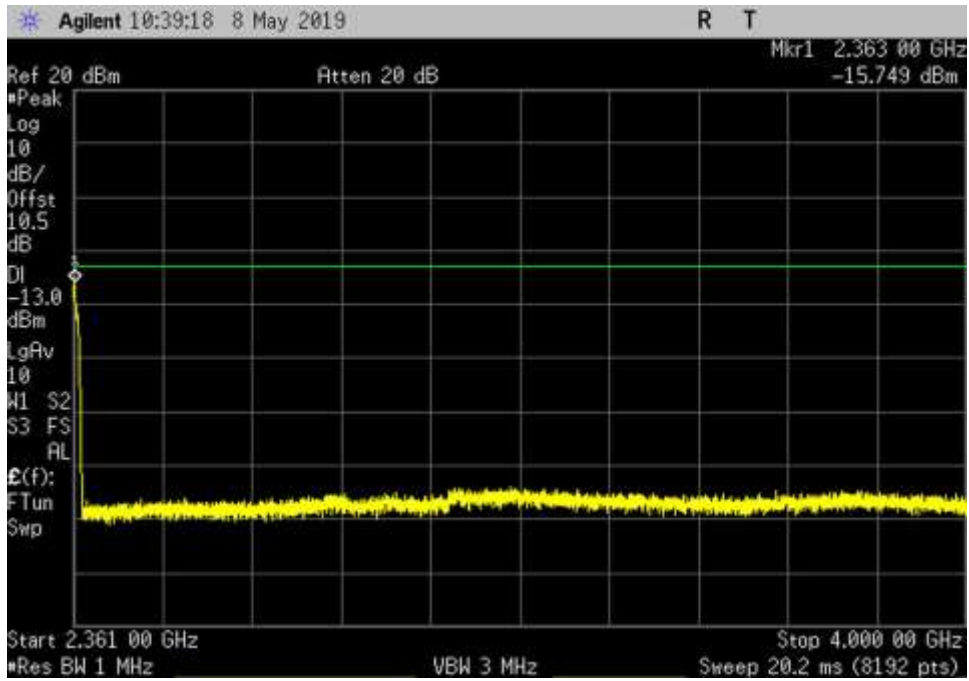
DL_2350-2360_GSM_30-2349MHz_LC



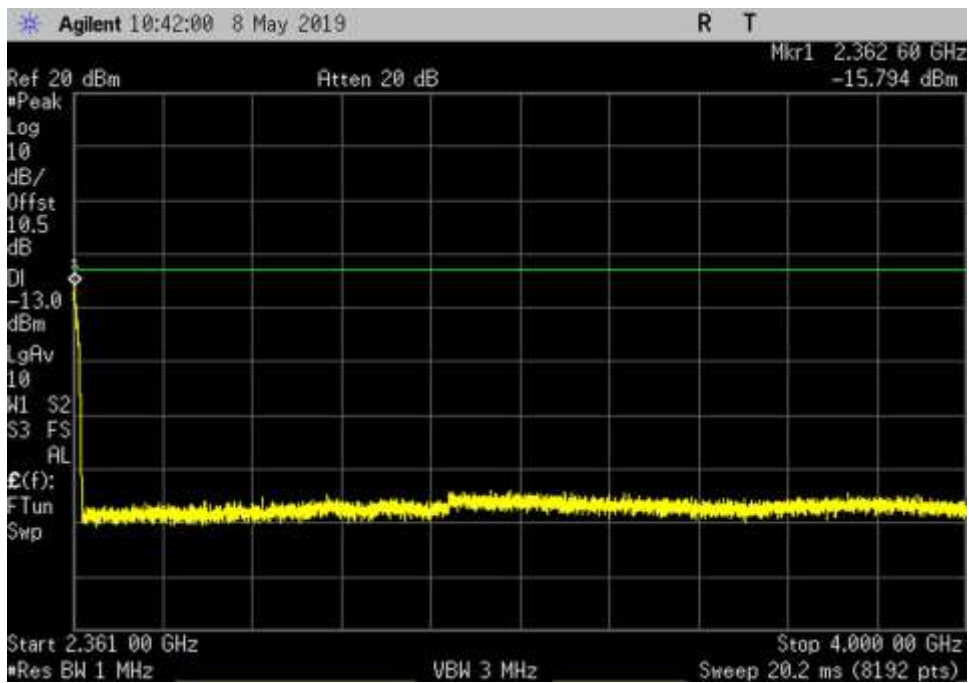
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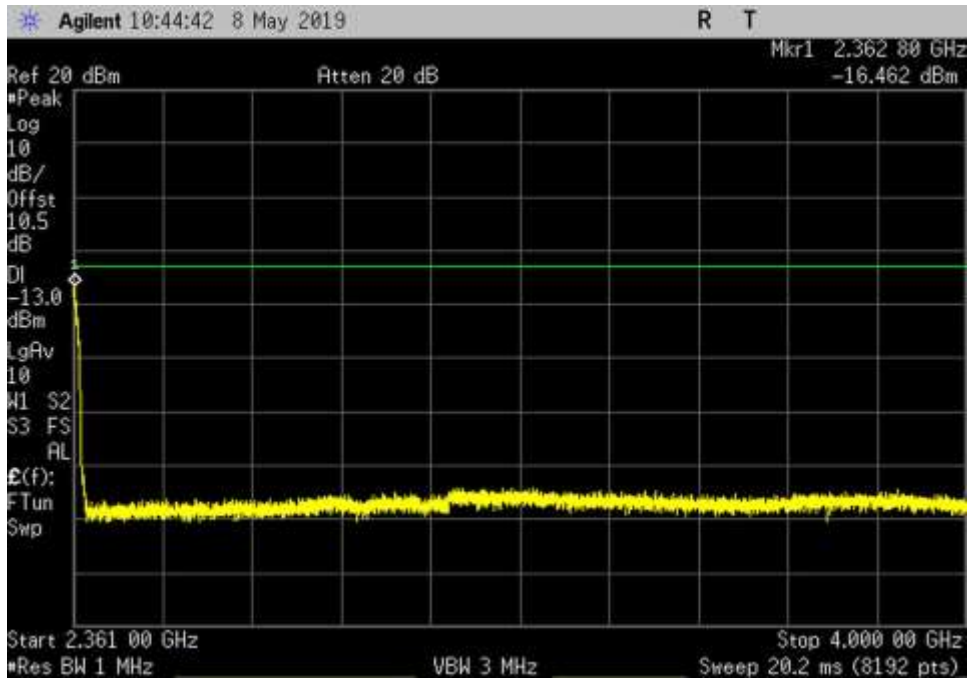
DL_2350-2360_GSM_30-2349MHz_HC



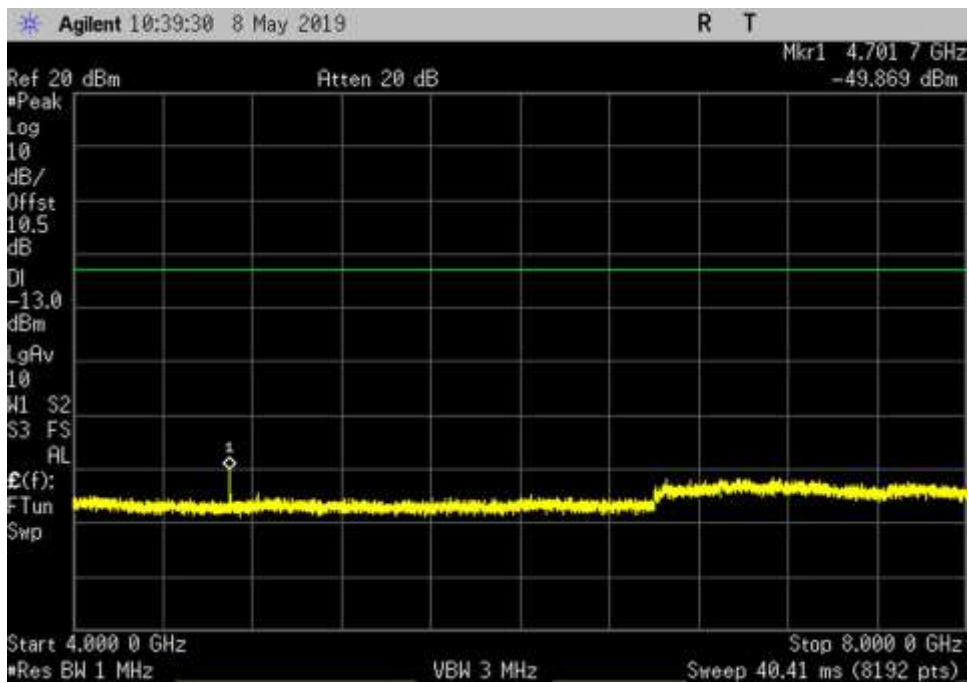
DL_2350-2360_GSM_2361-4000MHz_LC



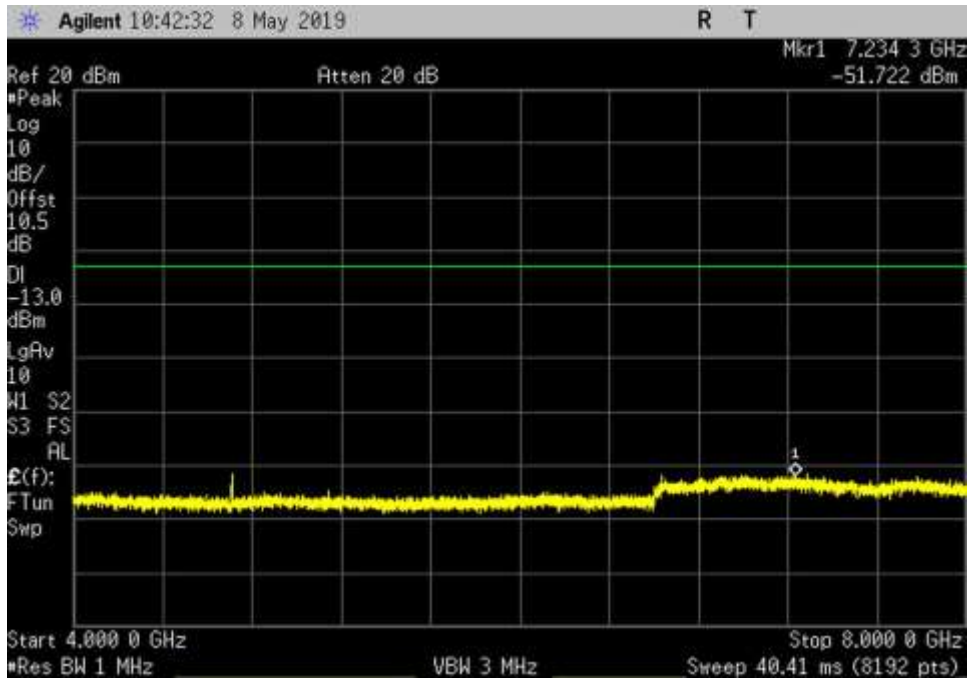
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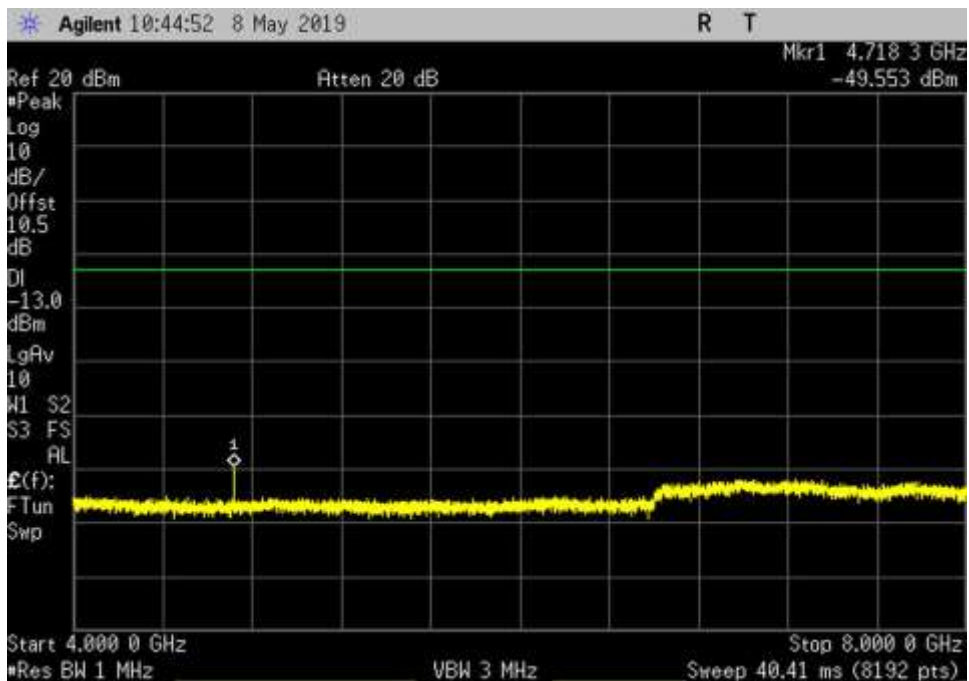
DL_2350-2360_GSM_2361- 4000MHz_HC



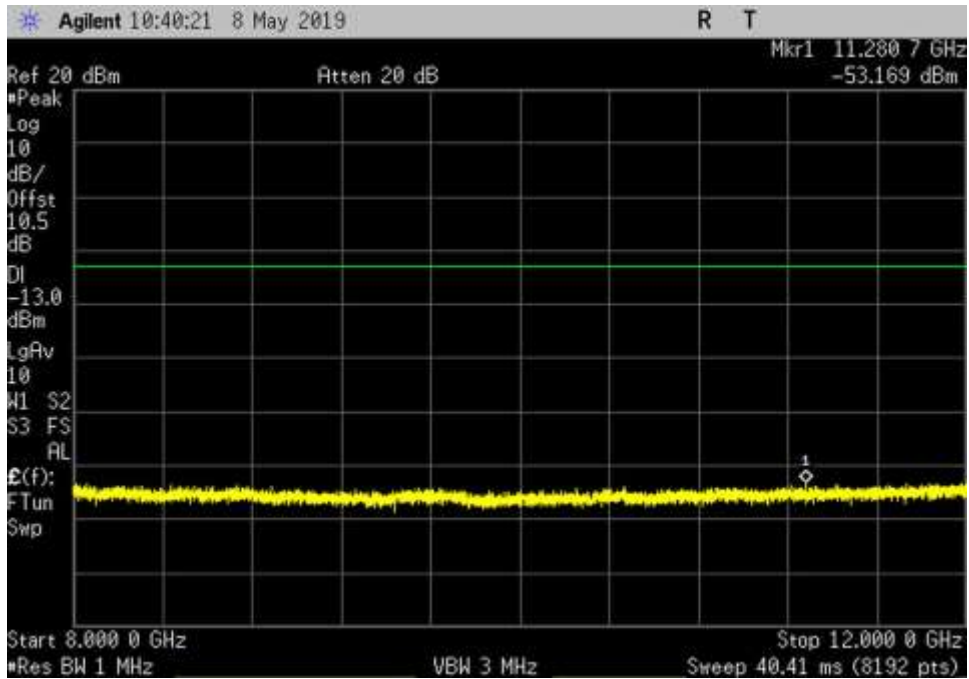
DL_2350-2360_GSM_4000- 8000MHz_LC



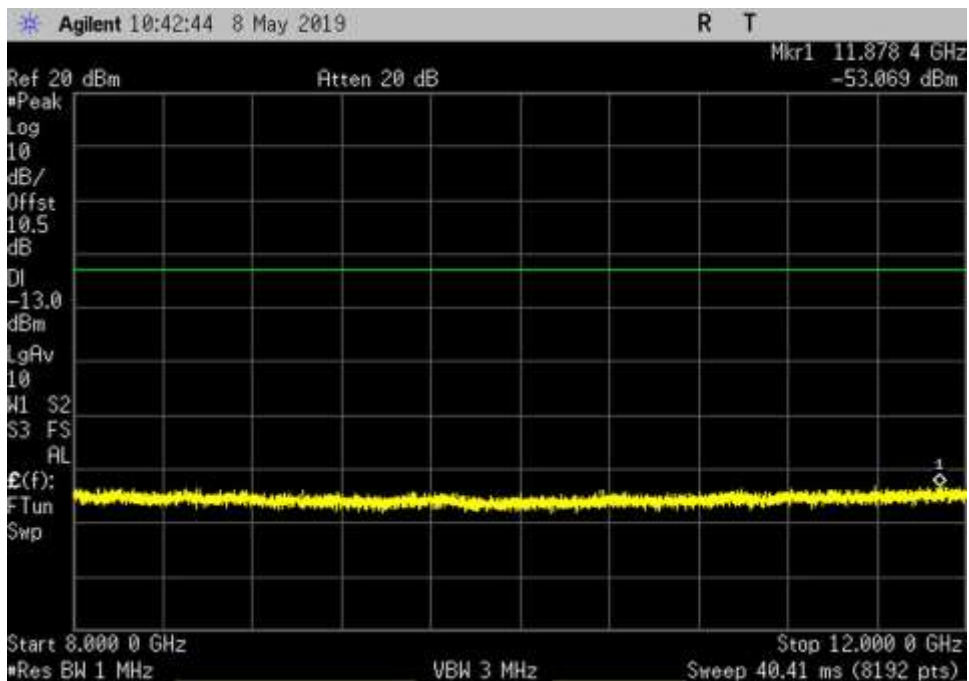
DL_2350-2360_GSM_4000-8000MHz_MC



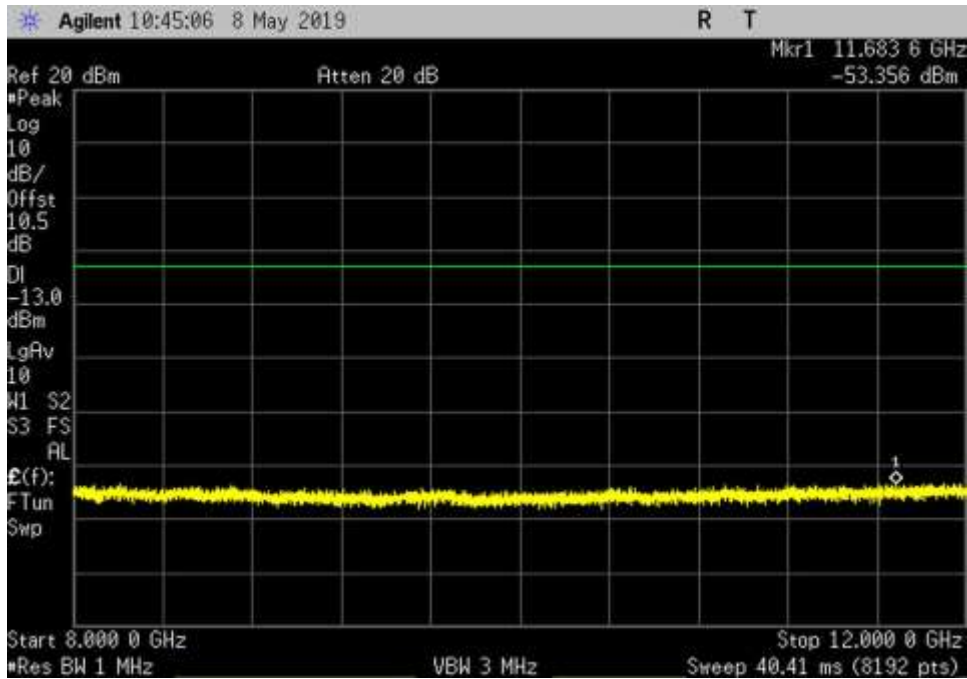
DL_2350-2360_GSM_4000-8000MHz_HC



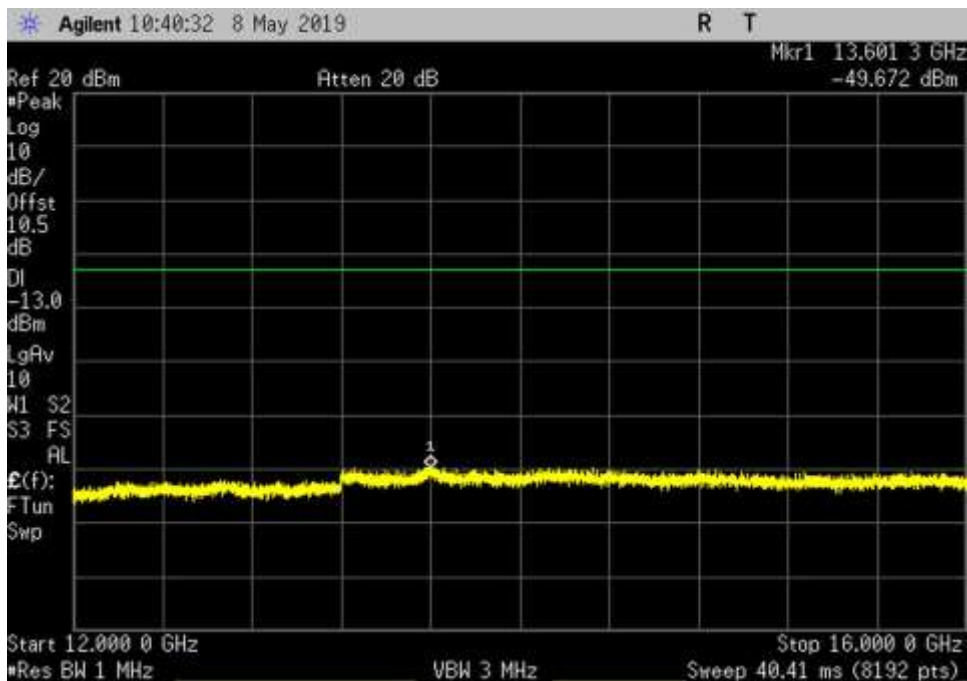
DL_2350-2360_GSM_8000-12000MHz_LC



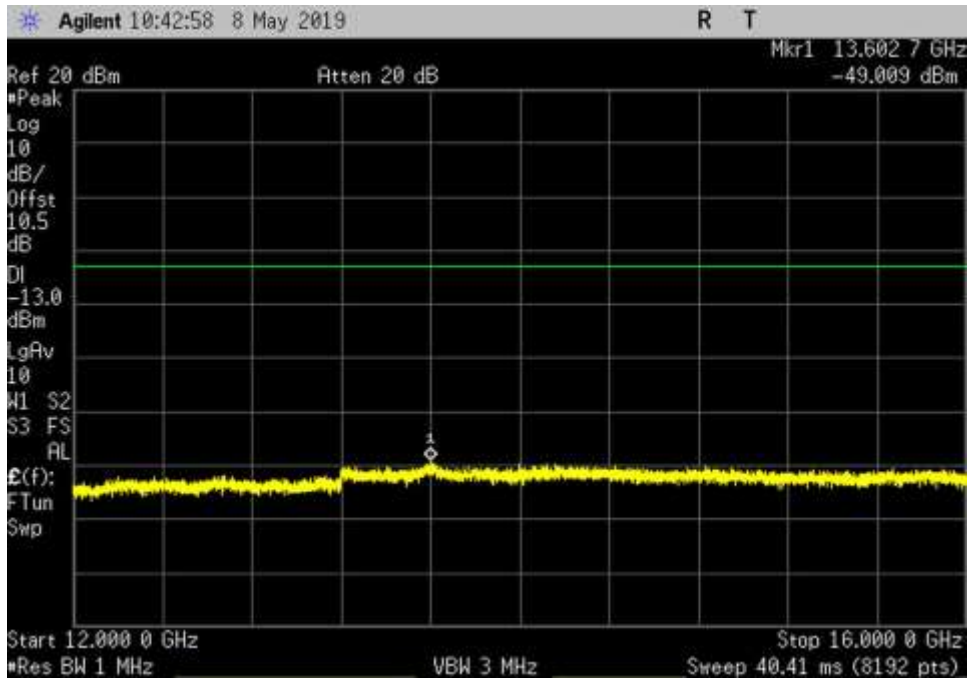
DL_2350-2360_GSM_8000-12000MHz_MC



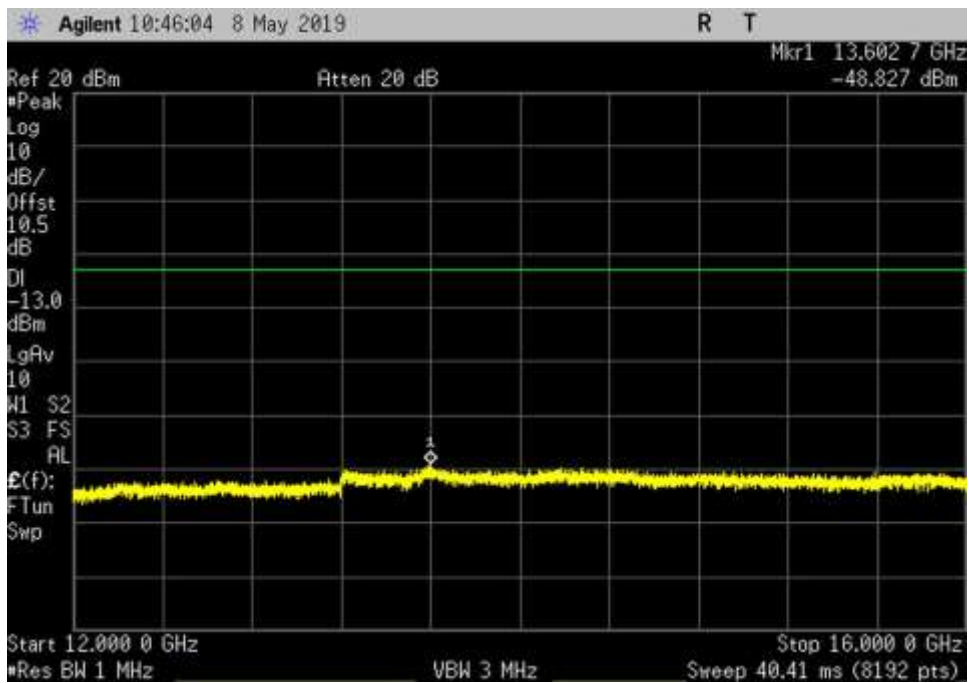
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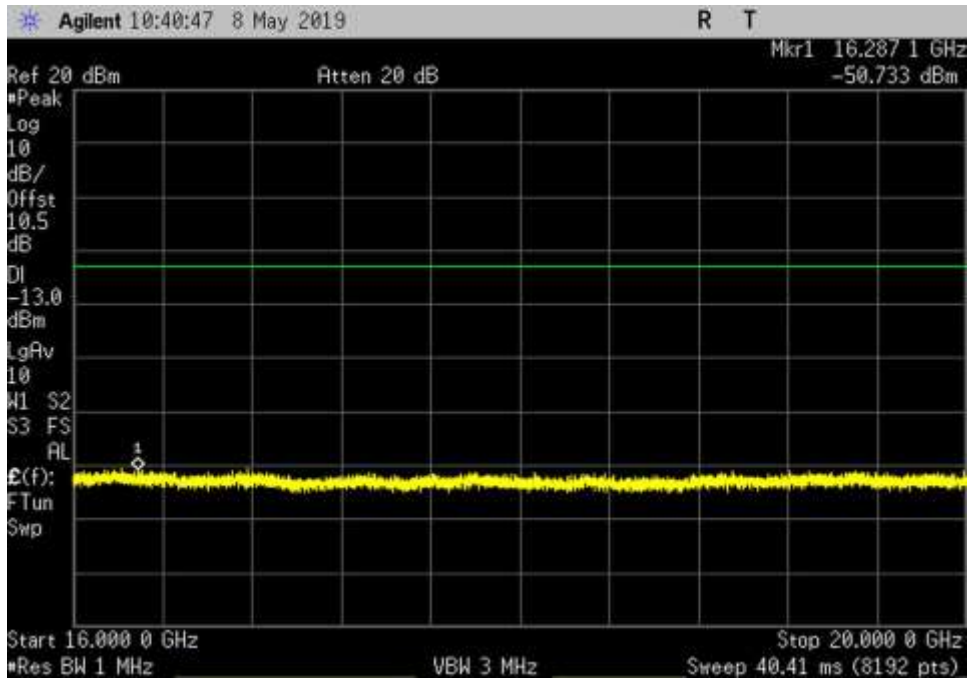
DL_2350-2360_GSM_12000-16000MHz_LC



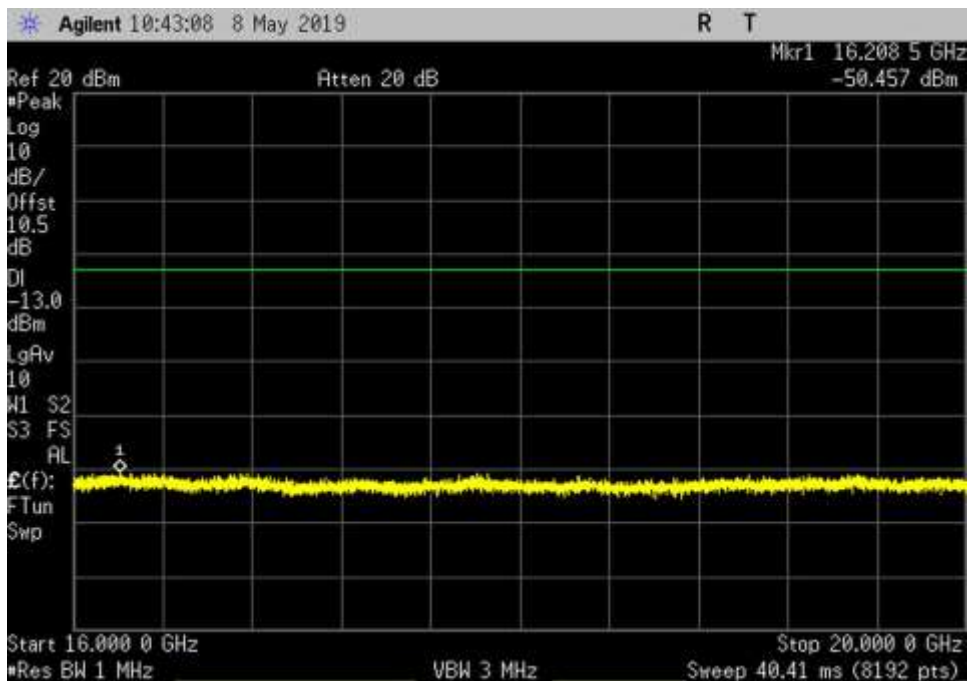
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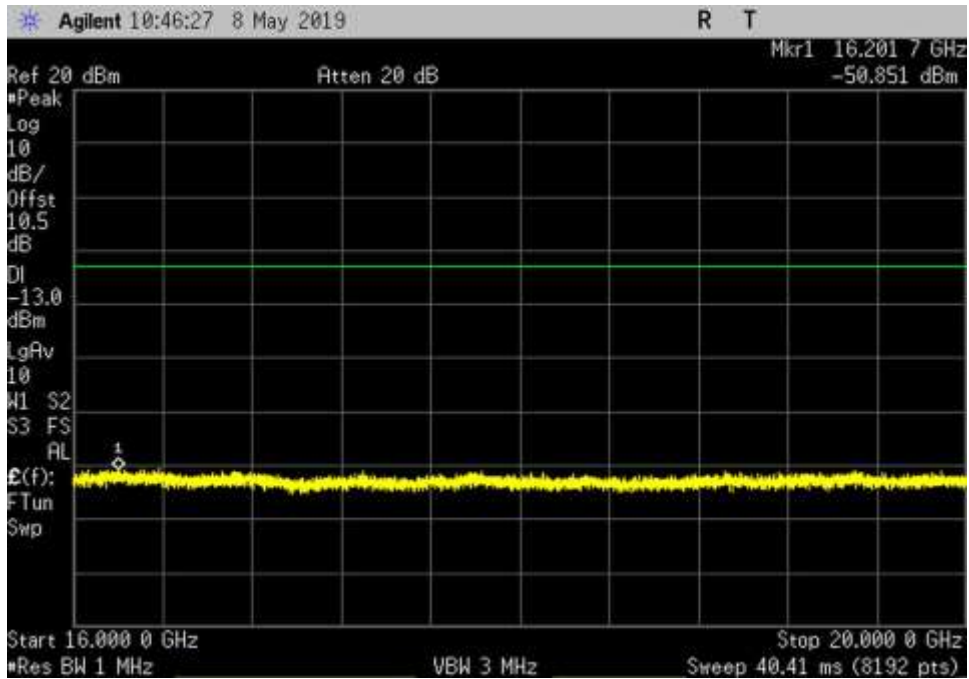
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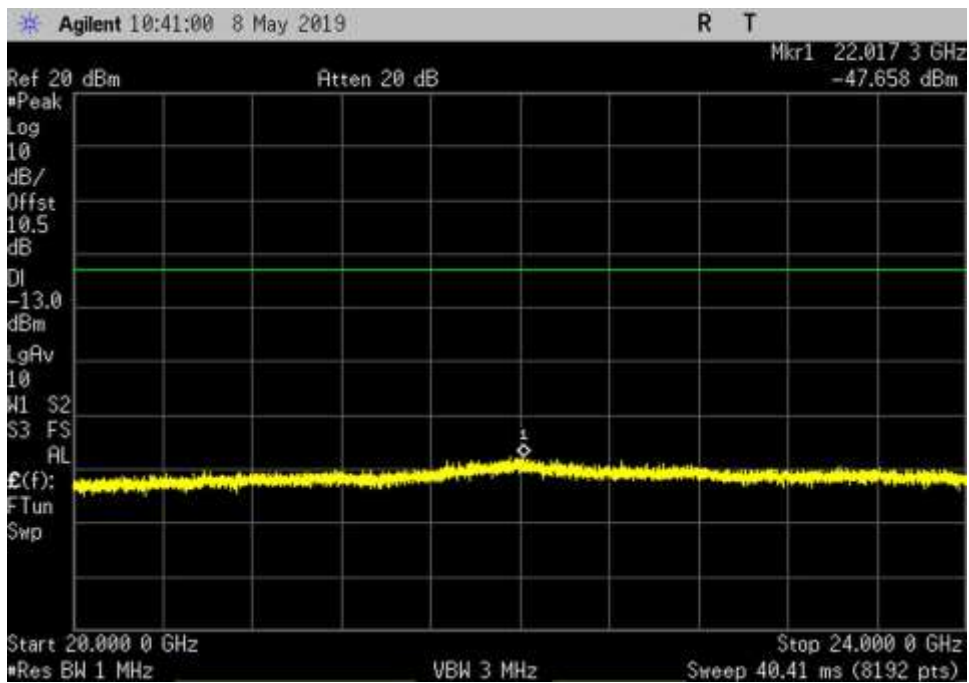
DL_2350-2360_GSM_16000- 20000MHz_LC



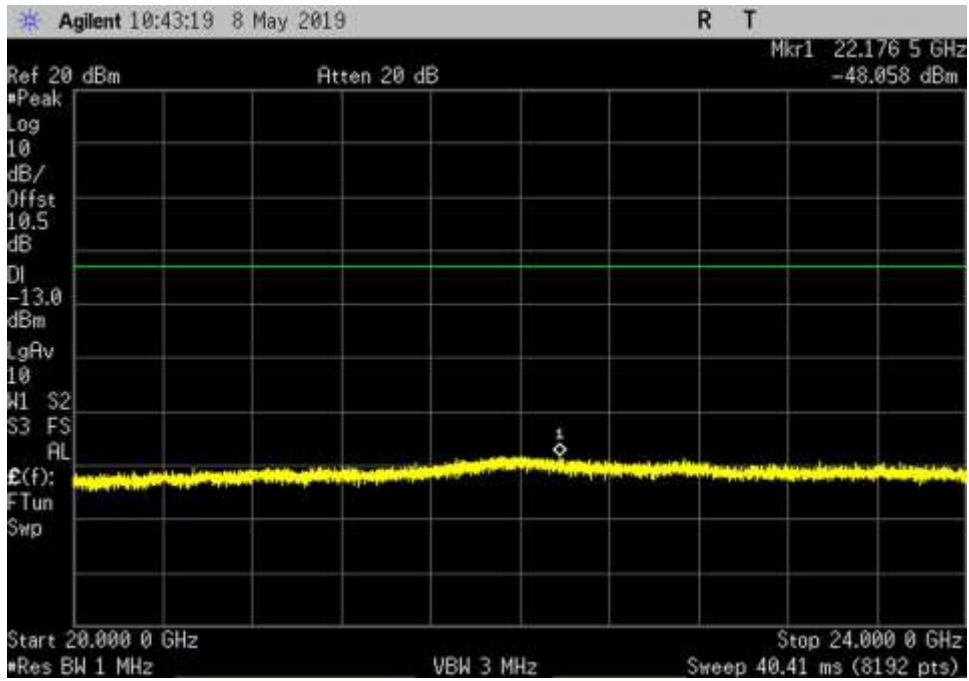
DL_2350-2360_GSM_16000- 20000MHz_MC



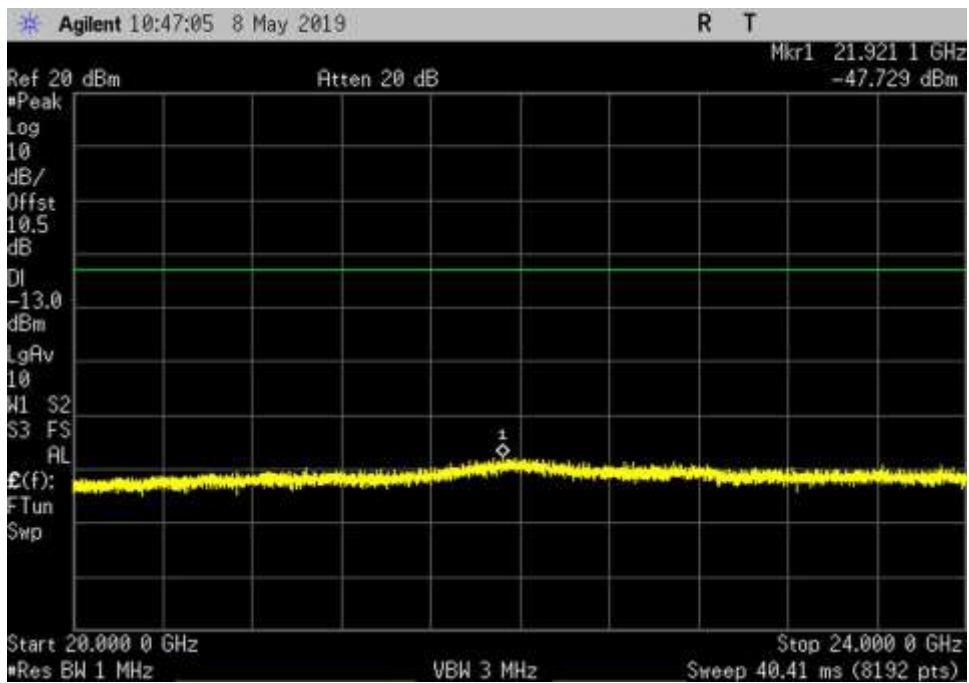
DL_2350-2360_GSM_16000-20000MHz_HC



DL_2350-2360_GSM_20000-24000MHz_LC



DL_2350-2360_GSM_20000- 24000MHz_MC



DL_2350-2360_GSM_20000- 24000MHz_HC

3.8 Radiated Spurious Emissions

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170
 Customer: Cellphone-Mate, Inc.
 Specification: **3.8 Radiated Spurious Emissions**

Work Order #: **102430** Date: 05/01/2019
 Test Type: **Radiated Emissions**
 Tested By: **Hieu Song Nguyenpham**
 Software: EMITest 5.03.11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N

Test Conditions / Notes:

Test environment conditions:
 Temperature: 20.6°C
 Relative Humidity: 45%
 Atmospheric Pressure: 102.1kPa

Frequency range of measurement = 9 kHz- 24 GHz.
 9 kHz - 150 kHz -> RBW=200 Hz VBW=1 kHz
 150 kHz - 30 MHz -> RBW=9 kHz VBW=30 kHz
 30 MHz - 1000MHz -> RBW=120 kHz VBW=1 MHz
 1000 MHz-24000MHz -> RBW=1 MHz VBW=3 MHz

Note:
 No spurious emissions were found within 20dB of the limit line.
 Emissions in the band 1559-1610 MHz were investigated and these were not found within 20dB of the limit line.
 The setup is the worst case of Radiated Spurious Emissions.

27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotopically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

Test Equipment:

Asset #	Description	Model	Calibration Date	Cal Due Date
AN03471	Spectrum Analyzer	E4440A	1/18/2018	1/18/2020
00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020
ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
ANP00880	Cable	RG214U	5/14/2018	5/14/2020
P01187	Cable	CNT-195	8/20/2018	8/20/2020
02157	Horn Antenna	3115	1/15/2019	1/15/2021
07508	Preamp	310N	10/15/2018	10/15/2020
AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020
03013	Cable	32022-2-2909K-36TC	6/25/2018	6/25/2020
AN02693	Active Horn Antenna-ANSI C63.5 3m	AMFW-5F-12001800-20-10P	5/11/2017	5/11/2019
AN02694	Horn Antenna-ANSI C63.5 Calibration	AMFW-5F-18002650-20-10P	5/11/2017	5/11/2019
AN00266	Loop Antenna	6502	6/1/2018	6/1/2020
AN03607	Preamp	AMF-7D-00101800-30-10P	6/6/2017	6/6/2019
P06899	Cable	32022-29094K-29094K-72TC	1/4/2018	1/4/2020
P06126	Cable	32022-29094K-29094K-168TC	5/3/2019	5/3/2021

Summary of Results

Pass: All Radiated Spurious Emissions were found with more than 20dB margin of the limit line.

Frequency Range of measurement 9kHz → 24GHz

LIMIT LINE FOR SPURIOUS RADIATED EMISSION

$$\text{REQUIRED ATTENUATION} = 43+10 \text{ LOG P (DB)}$$

For radiated spurious emission measured at 3 meter test distance,

$$\begin{aligned} \text{Required attenuation} &= 43+10 \text{ Log } P_{t \text{ at 3 meter}} \text{ dB} \\ \text{Limit line (dBuV)} &= E_{\text{dBuV}} - \text{Attenuation} \end{aligned}$$

E_{dBuV} = Measured field strength at 3 meter in dBuV/m

Power Density (Isotropic)

$$P_D = \frac{P_t}{4\pi r^2}$$

P_D = Power Density in Watts /m²

P_t = Average Transmit Power

r = Test distance

Field Intensity E (V/m)

$$E = \sqrt{P_D \times 377}$$

$$E = \frac{\sqrt{P_t \times 377}}{4\pi r^2}$$

$$E = \sqrt{\frac{P_t \times 30}{r^2}}$$

$$P_t = \left(\frac{E^2 \times r^2}{30} \right)$$

$$10 \text{ Log } P_t = 10 \text{ Log } E^2 \text{ (V/m)} + 10 \text{ Log } r^2 - 10 \text{ Log } 30$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 20 \text{ Log } r - 10 \text{ Log } 30$$

At 3 meter, $r = 3 \text{ m}$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 20 \text{ Log } 3 - 10 \text{ Log } 30$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} + 9.54 - 14.77$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (V/m)} - 5.23$$

Since $20 \text{ Log } E \text{ (V/m)} = 20 \text{ Log } E \text{ (uV/m)} - 120$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (uV/m)} - 120 - 5.23$$

$$10 \text{ Log } P_t = 20 \text{ Log } E \text{ (uV/m)} - 125.23$$

$$\begin{aligned} \text{Limit line (dBuV) at 3 meter} &= E_{\text{dBuV}} - \text{Attenuation} \\ &= E_{\text{dBuV}} - (43 + 10 \text{ Log } P_t \text{ at 3 meter}) \\ &= E_{\text{dBuV}} - 43 - 10 \text{ Log } P_t \text{ at 3 meter} \\ &= E_{\text{dBuV}} - 43 - (20 \text{ Log } E \text{ (uV/m)} - 125.23) \\ &= E_{\text{dBuV}} - 43 - 20 \text{ Log } E \text{ (uV/m)} + 125.23 \\ &= E_{\text{dBuV}} - 20 \text{ Log } E \text{ (uV/m)} + 82.23 \end{aligned}$$

Since $20 \text{ Log } E \text{ (uV/m)} = E \text{ in dBuV/m}$

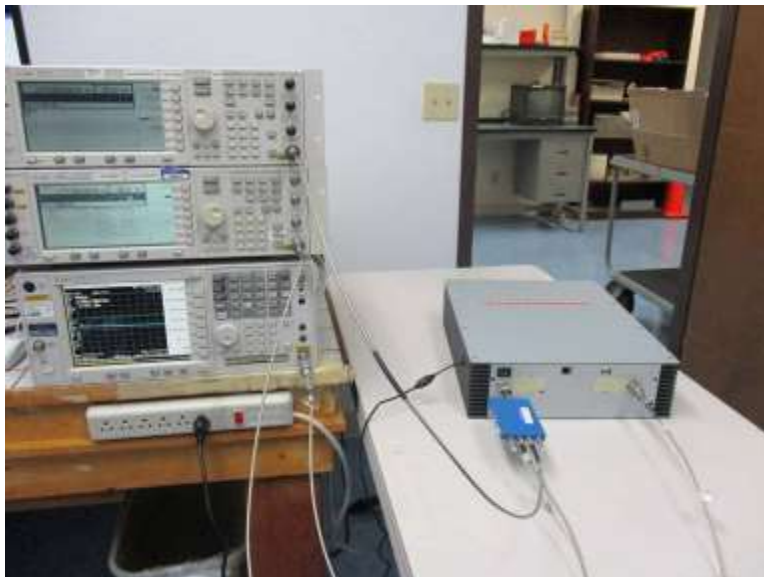
$$E_{\text{dBuV}} - E_{\text{dBuV}} + 82.23$$

$$\text{Radiated Emission limit 3 meter} = 82.23 \text{ dBuV at any power level measured in dBuV}$$

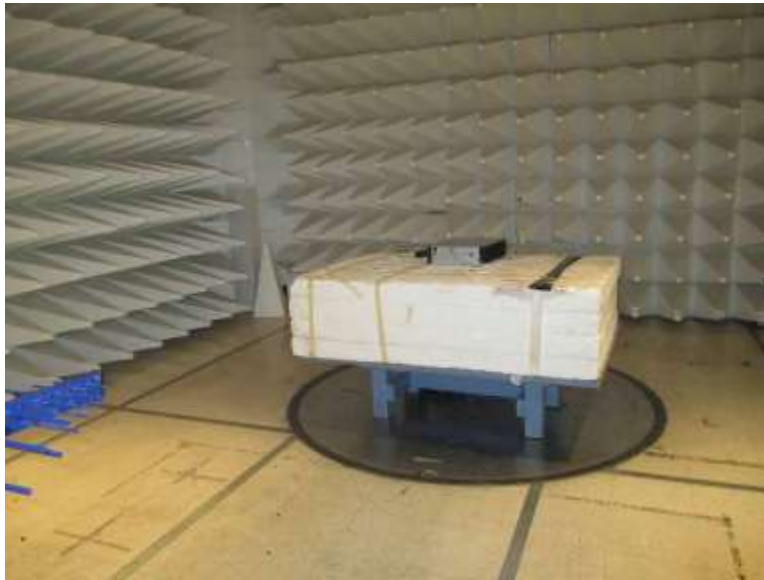
EXHIBIT A: TEST SETUP PHOTOS



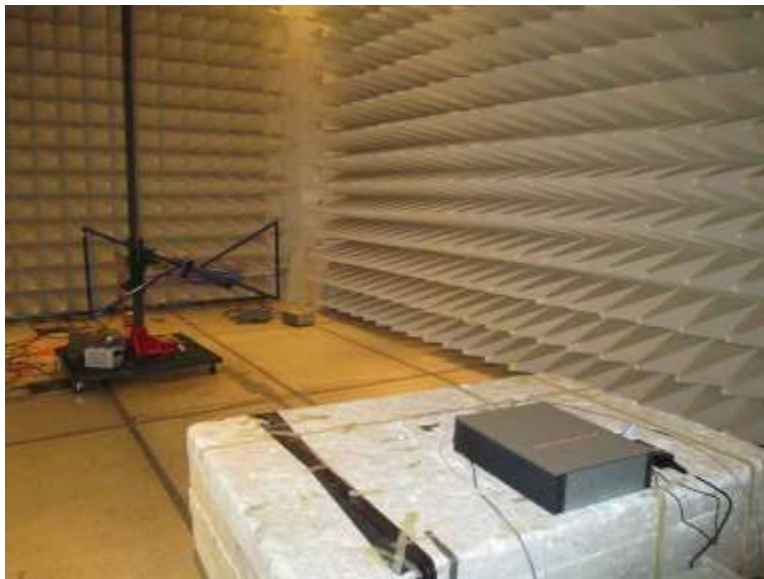
Section 3.3, 3.4, 3.5, 3.6.3 Test Setup



Section 3.6.2 Test Setup



Section 3.8 Below 1GHz



Section 3.8 Below 1GHz



Section 3.8 Above 1GHz



Section 3.8 Above 1GHz

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.