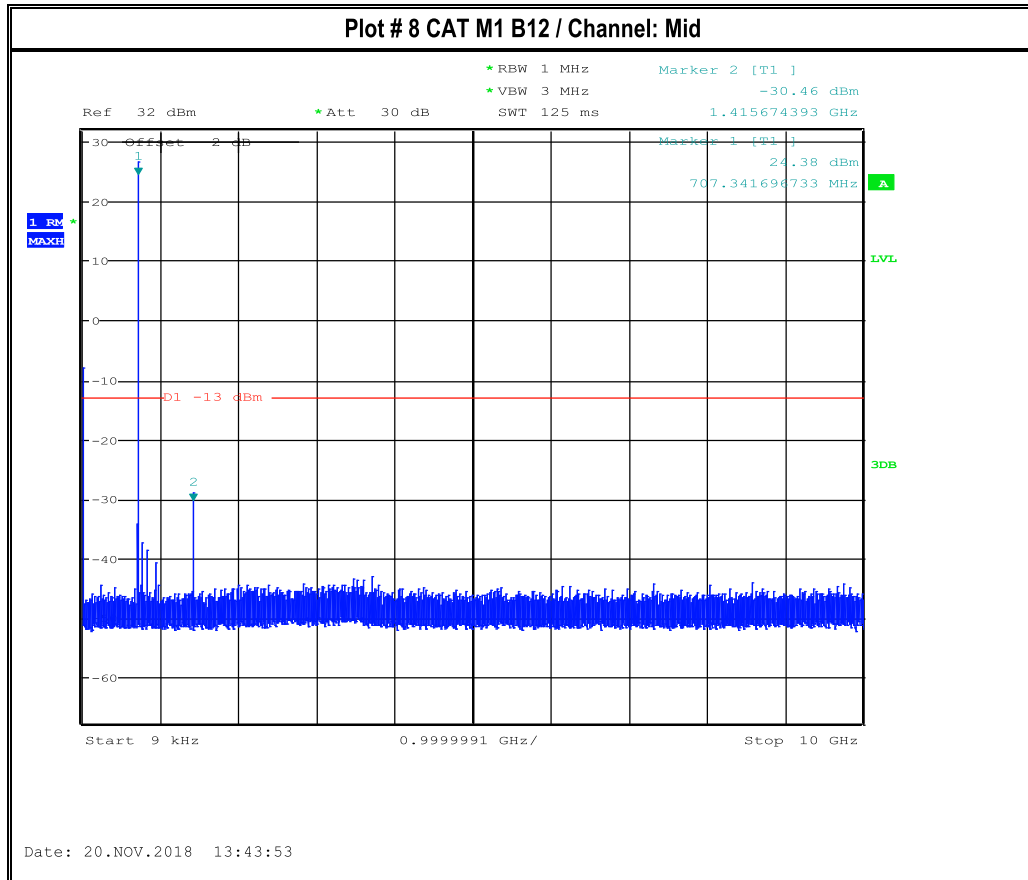


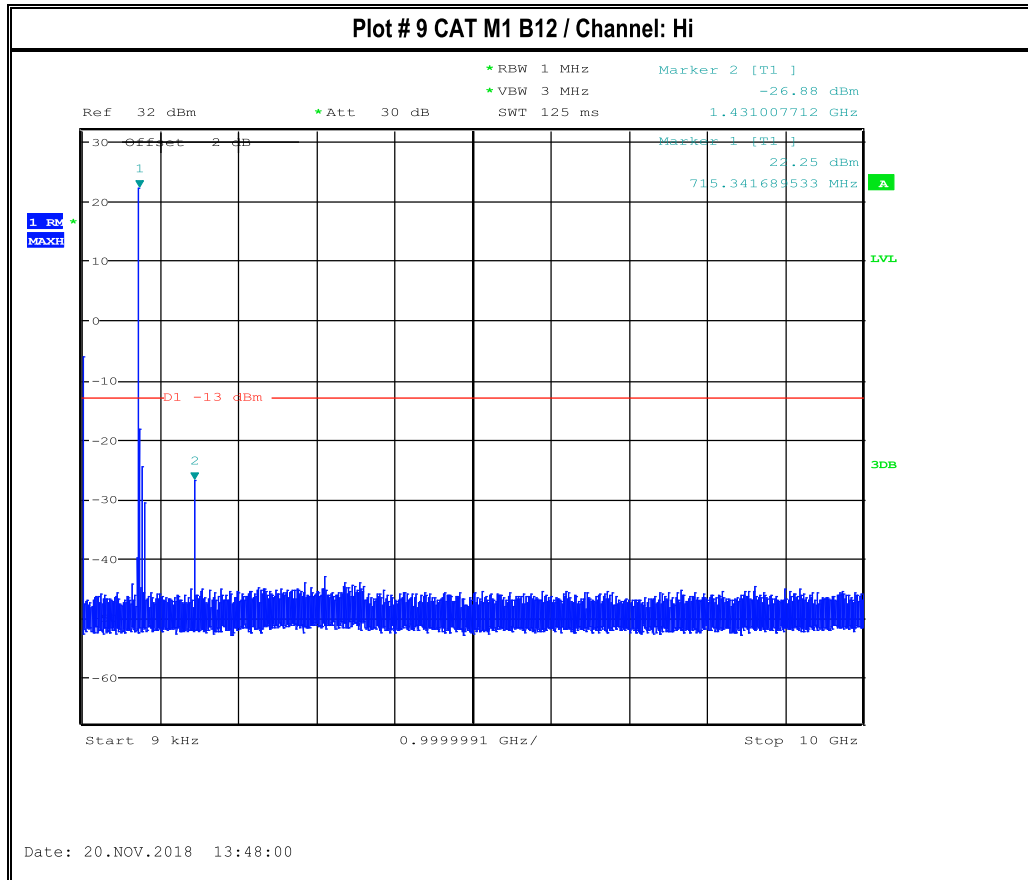


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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01

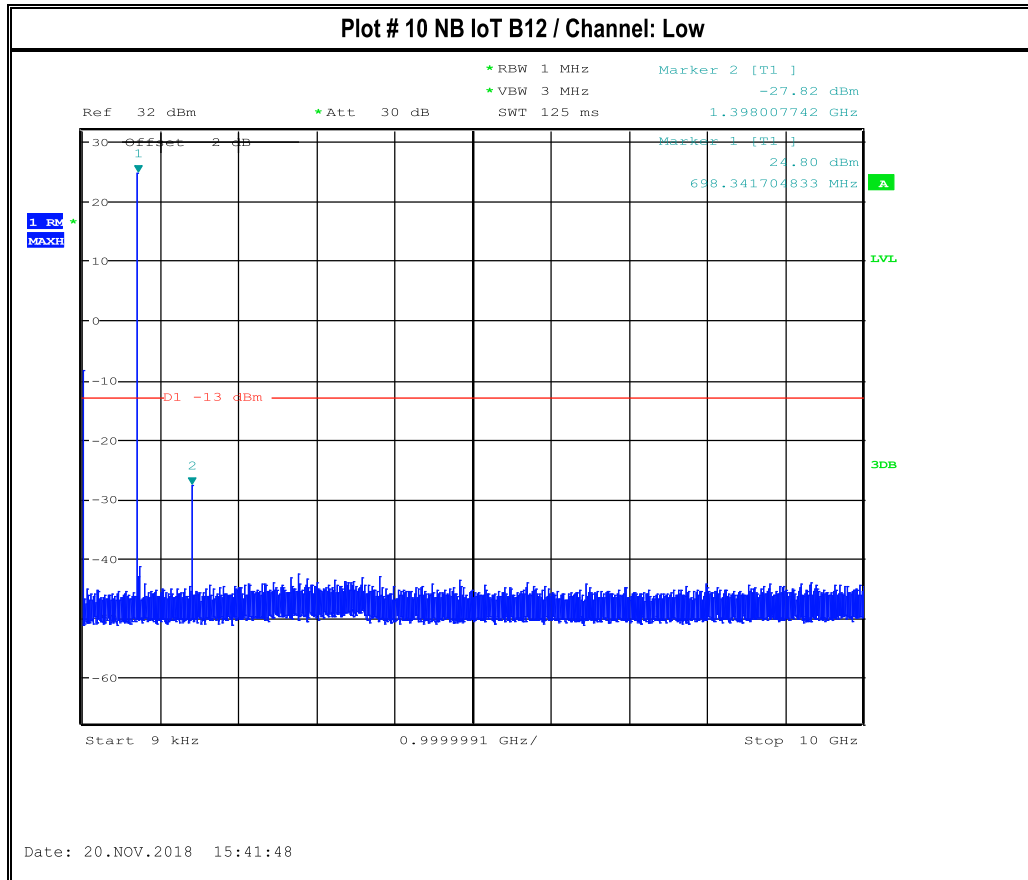


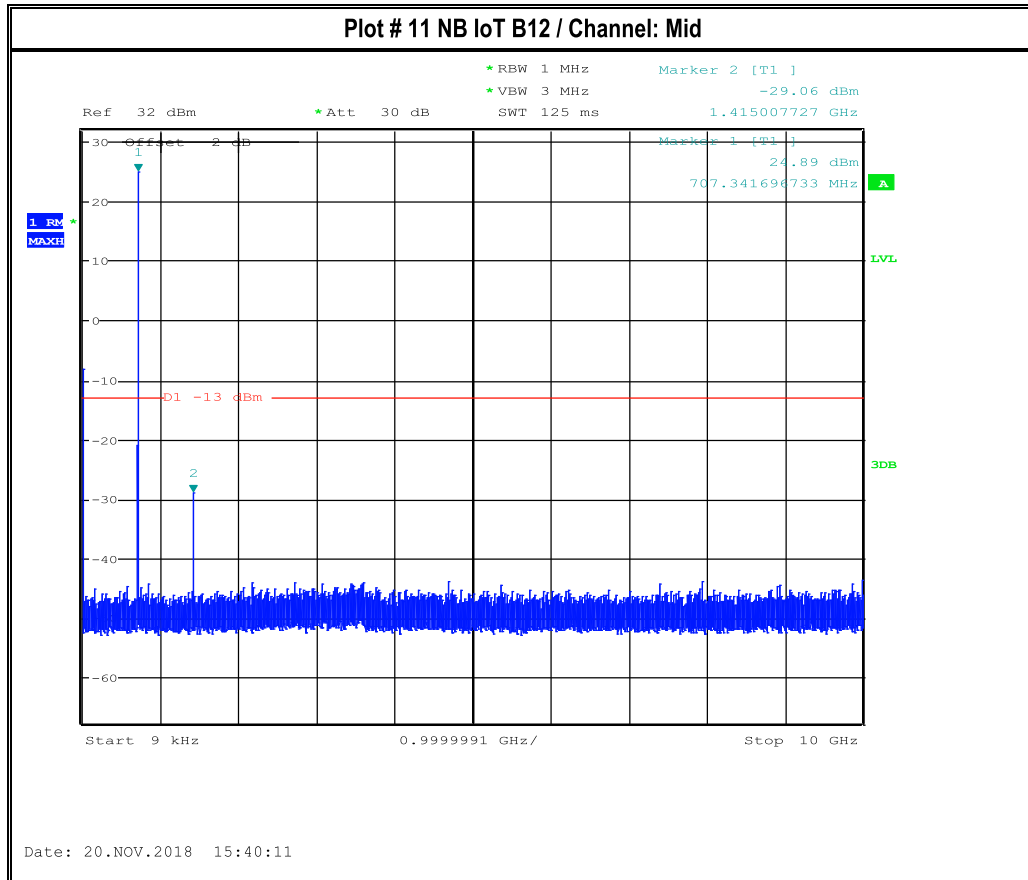
Test Report #:
Date of Report

EMC_CTSMC-003-18001_FCC_27_Rev_1
2019-1-21

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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01



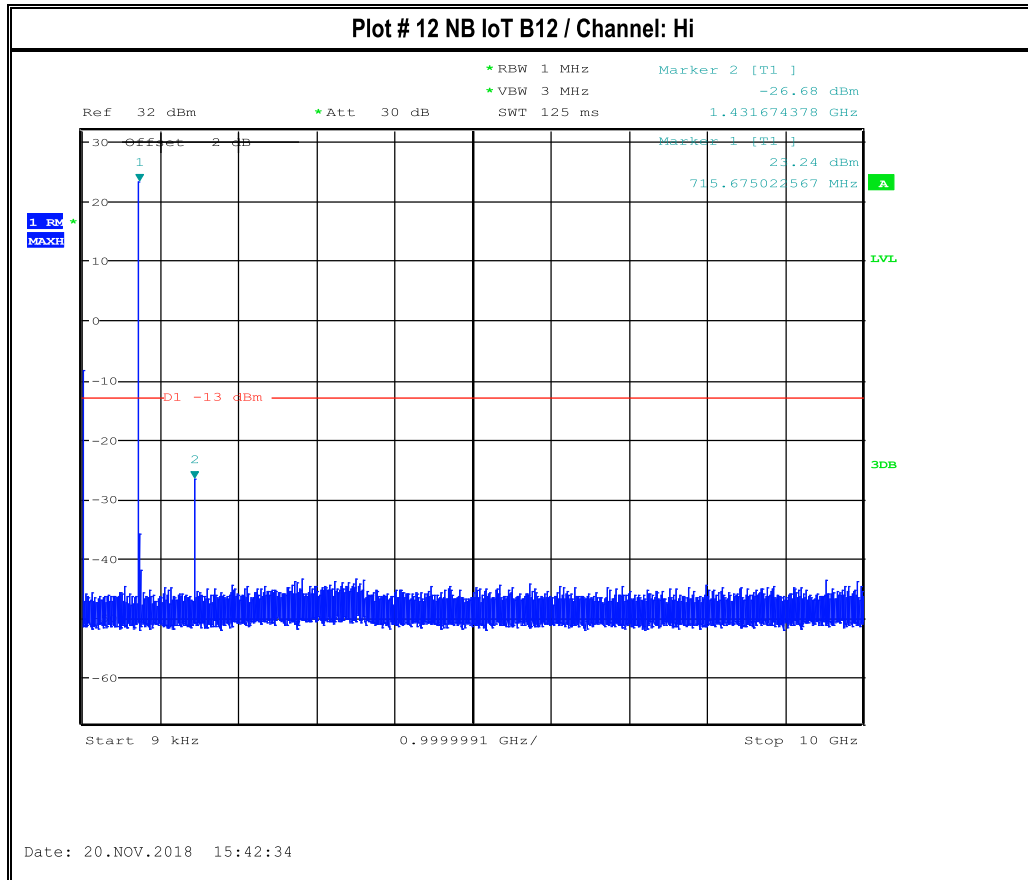


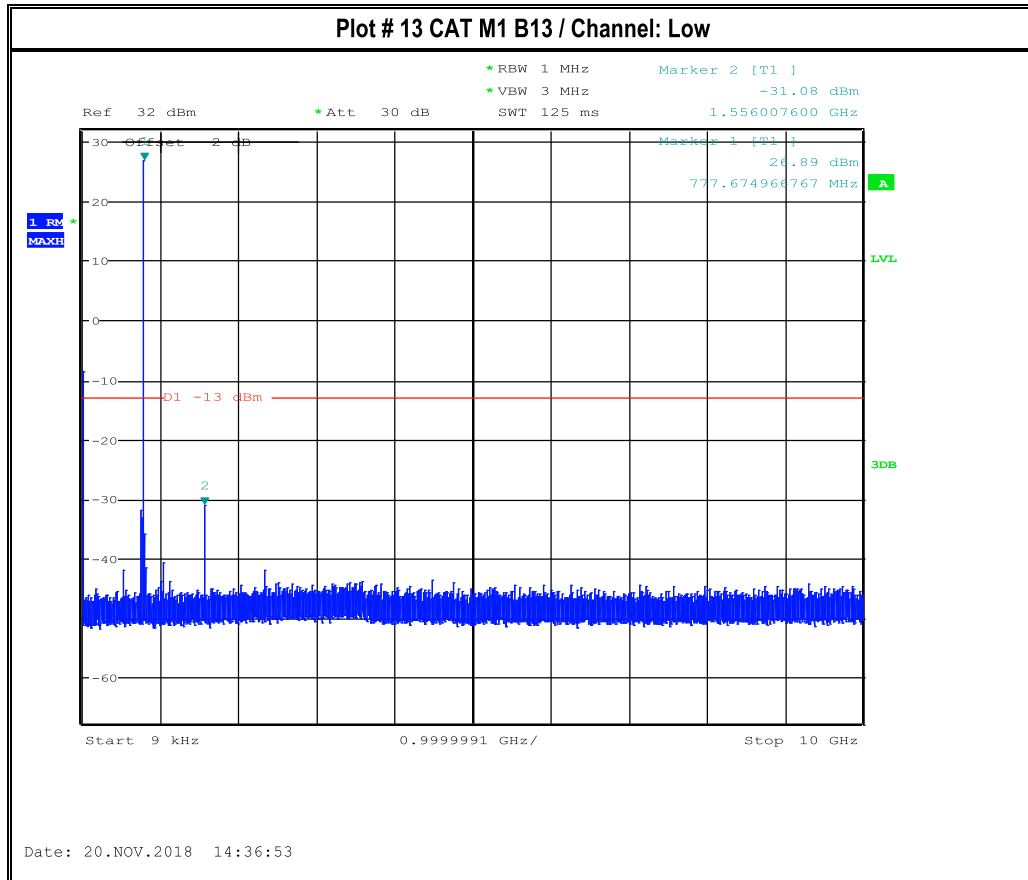
Test Report #:
Date of Report

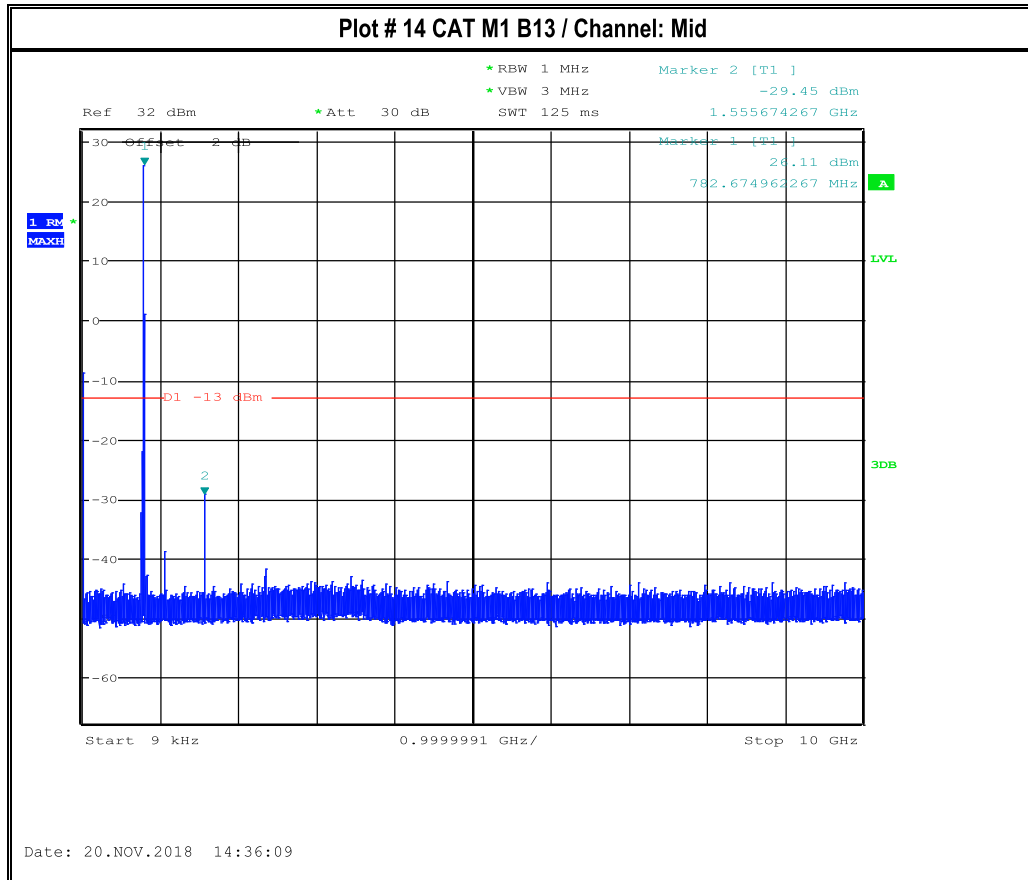
EMC_CTSMC-003-18001_FCC_27_Rev_1
2019-1-21

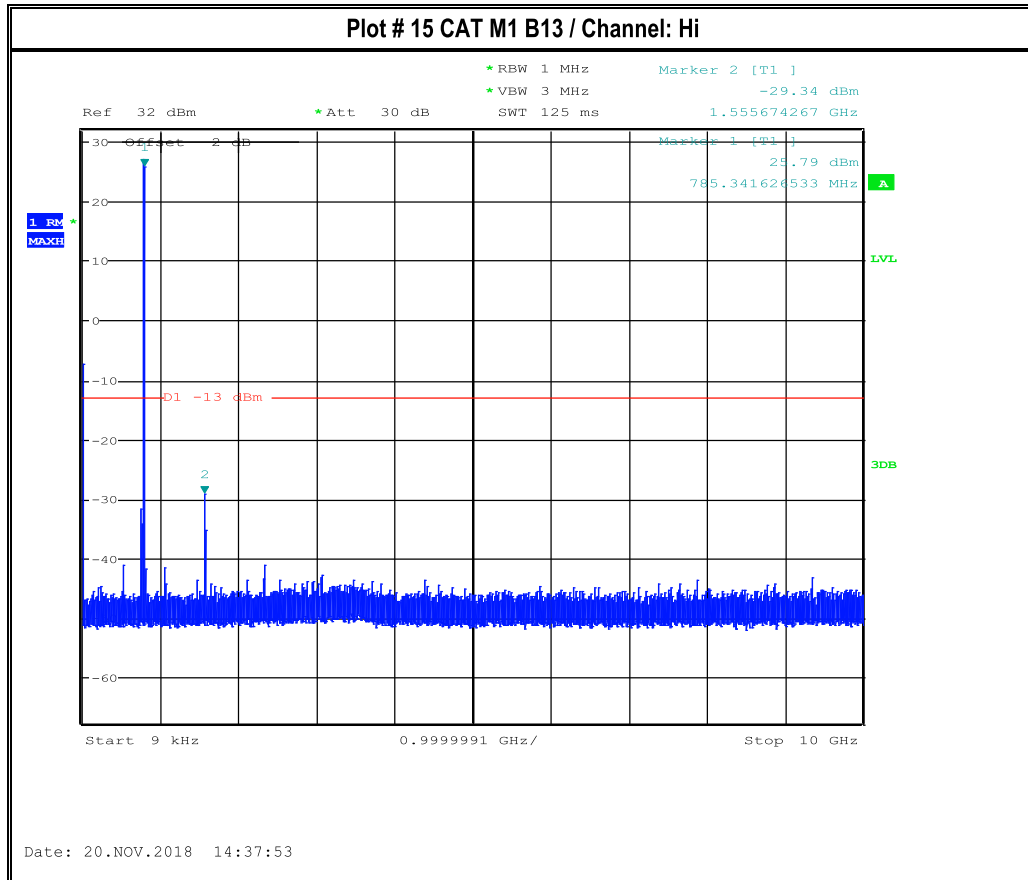
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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01







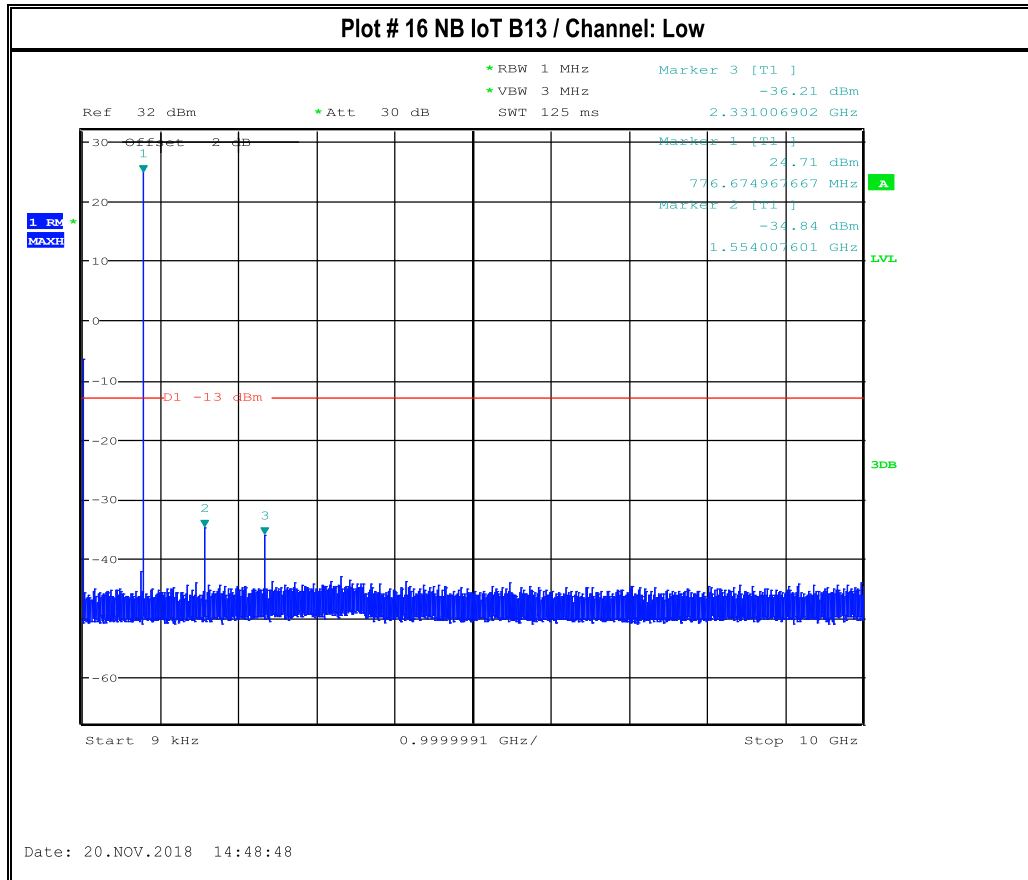


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2019-1-21

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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01

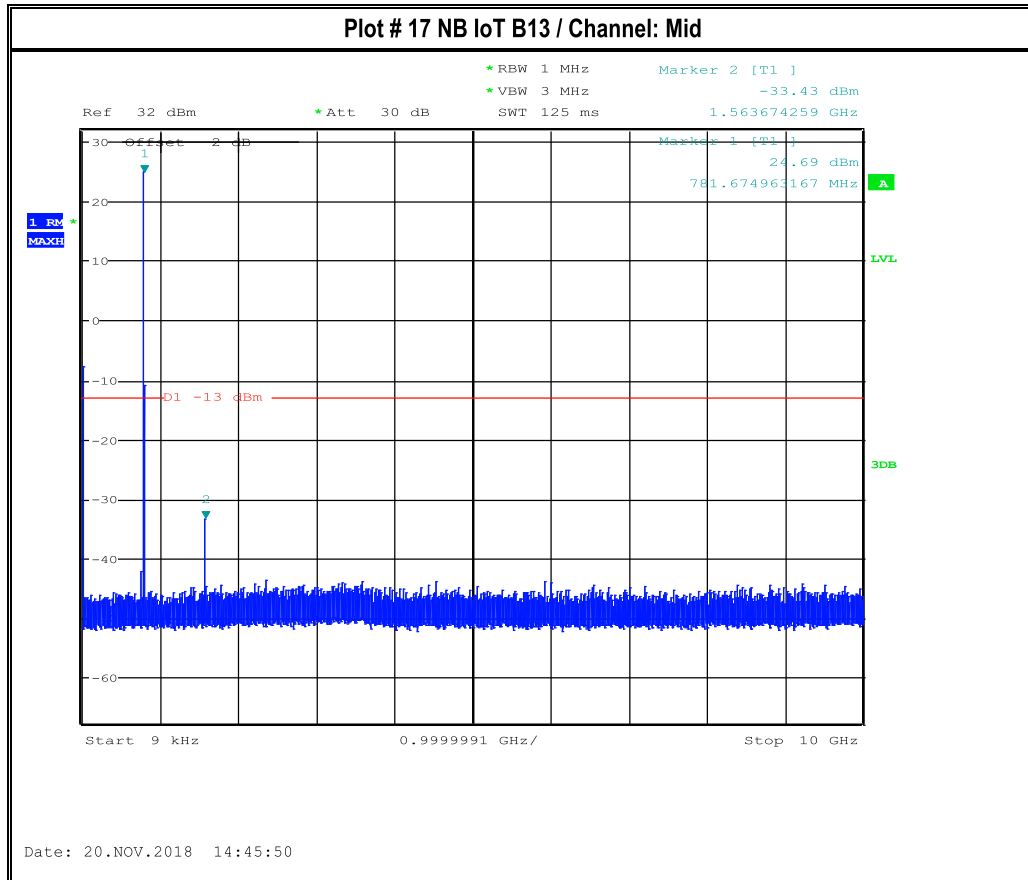


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2019-1-21

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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01

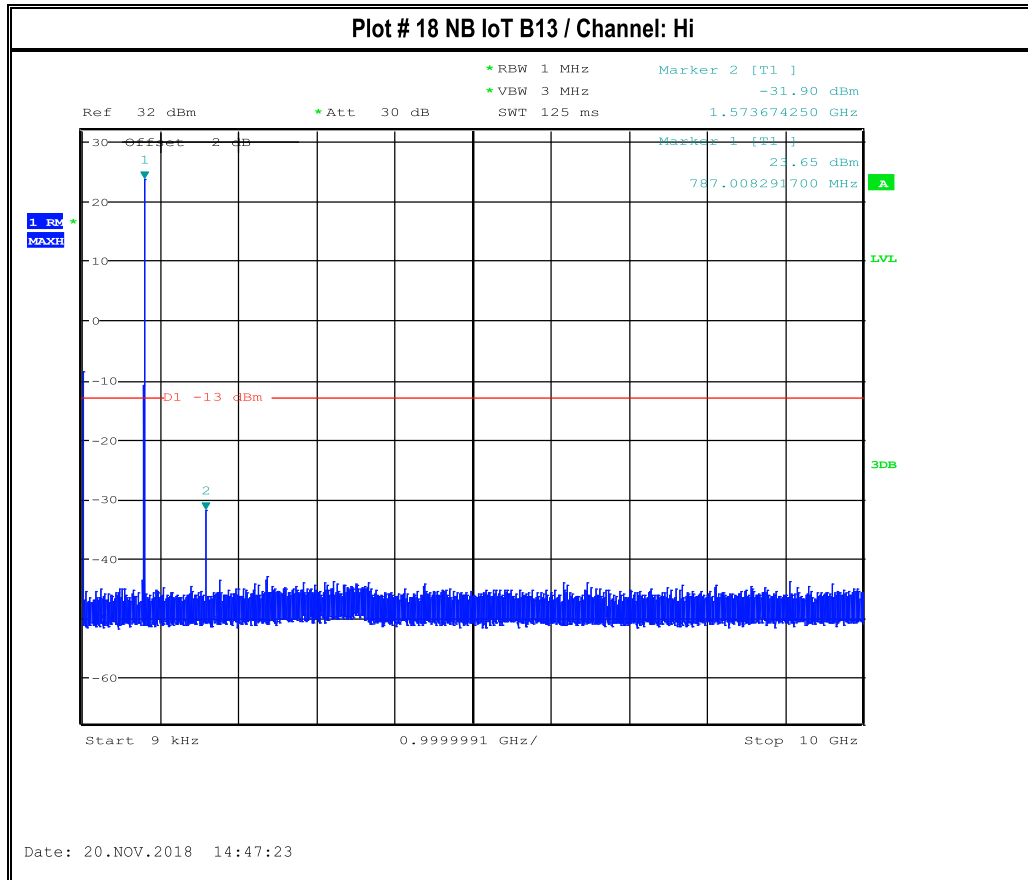


Test Report #:
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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01



7.6 Radiated Spurious Emissions

7.6.1 Measurement utilizing KDB 971168 D01 and ANSI C63.26-2015 Subclause 5.5.4

Frequency Range	30MHz – 1 GHz	1 – 2.7 GHz	2.7 – 18 GHz	18 – 19.1 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto	Auto

7.6.2 Limits:

7.6.2.1 FCC Part 27.53

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

7.6.2.2 RSS-130 6.4, and RSS-139 Part 6.6 Transmitter Unwanted Emissions

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

i. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

ii. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

Note: The limit calculation result is a constant of -13 dBm.

7.6.3 Test conditions and setup:

Ambient Temperature (C)	EUT Set-Up #	EUT operating mode	Power Input
22	2	1 and 2	110 V / 60 Hz

7.6.4 Measurement result:

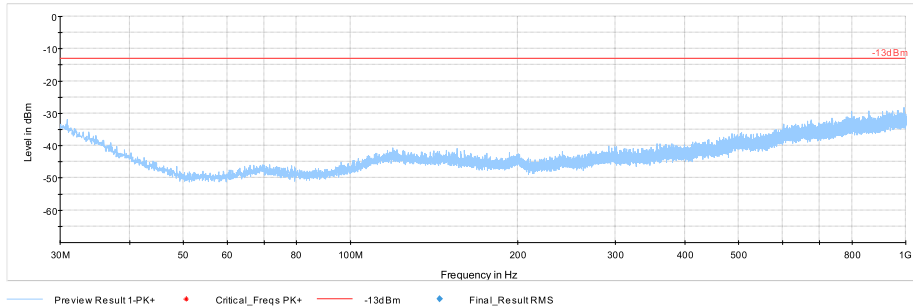
Plot #	Channel	EUT operating mode	Scan Frequency	Limit (dBm)	Result
1-3	Low	CAT M1 B4	30 MHz – 9 GHz	-13	Pass
4-8	Mid	CAT M1 B4	9 kHz – 22 GHz	-13	Pass
9-11	High	CAT M1 B4	30 MHz – 9 GHz	-13	Pass
12-14	Low	NB IoT B4	30 MHz – 9 GHz	-13	Pass
15-19	Mid	NB IoT B4	9 kHz – 22 GHz	-13	Pass
20-22	High	NB IoT B4	30 MHz – 9 GHz	-13	Pass
23-25	Low	CAT M1 B12	30 MHz – 9 GHz	-13	Pass
26-29	Mid	CAT M1 B12	9 kHz – 9 GHz	-13	Pass
30-32	High	CAT M1 B12	30 MHz – 9 GHz	-13	Pass
33-35	Low	NB IoT B12	30 MHz – 9 GHz	-13	Pass
36-39	Mid	NB IoT B12	9 kHz – 9 GHz	-13	Pass
40-42	High	NB IoT B12	30 MHz – 9 GHz	-13	Pass
43-45	Low	CAT M1 B13	30 MHz – 9 GHz	-13	Pass
46-49	Mid	CAT M1 B13	9 kHz – 9 GHz	-13	Pass
50-52	High	CAT M1 B13	30 MHz – 9 GHz	-13	Pass
53-55	Low	NB IoT B13	30 MHz – 9 GHz	-13	Pass
56-59	Mid	NB IoT B13	9 kHz – 9 GHz	-13	Pass
60-62	High	NB IoT B13	30 MHz – 9 GHz	-13	Pass

7.6.5 Measurement Plots:

7.6.6 CAT M1 B4

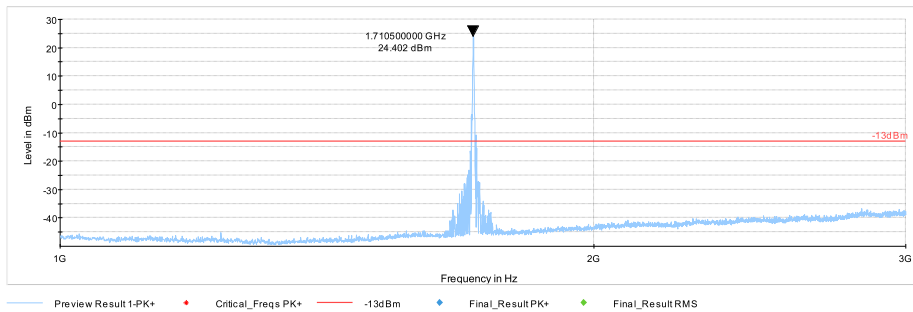
Plot #1 Radiated Emissions: 30 MHz – 1GHz

Channel: Low



Plot # 2 Radiated Emissions: 1-3 GHz

Channel: Low

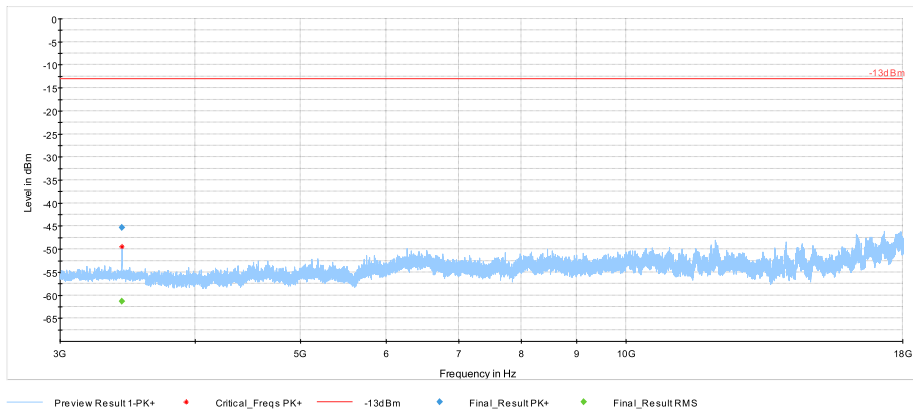


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

Plot # 3 Radiated Emissions: 3-18 GHz

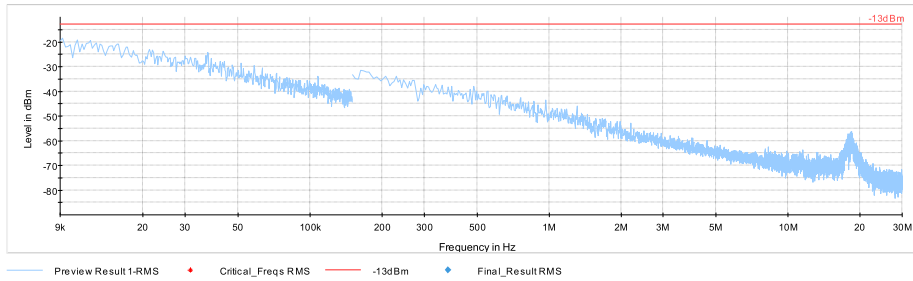
Channel: Low

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3421.511333	---	-61.38	---	---	322.0	V	251.0	-103.1
3421.511333	-45.27	---	-13.00	32.27	322.0	V	251.0	-103.1



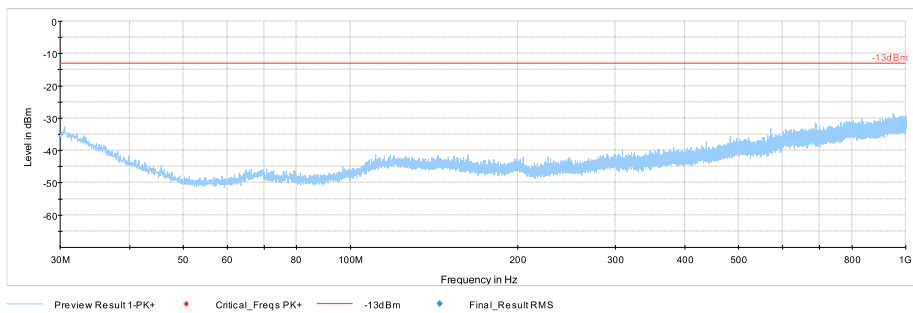
Plot # 4 Radiated Emissions: 9 kHz-30 MHz

Channel: Mid



Plot #5 Radiated Emissions: 30 MHz – 1GHz

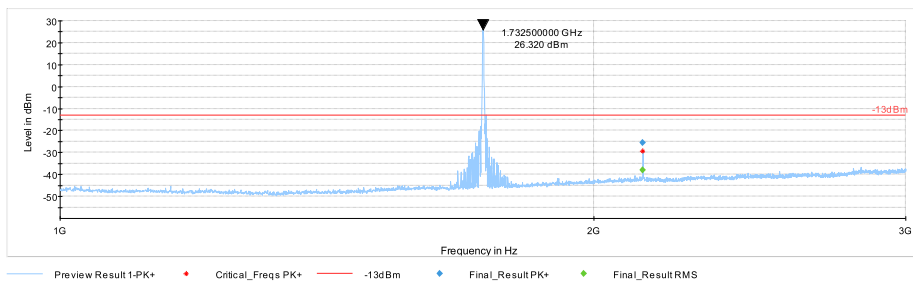
Channel: Mid



Plot #6 Radiated Emissions: 1-3 GHz

Channel: Mid

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2132.386375	---	-38.05	---	---	140.0	H	7.0	-60.8
2132.386375	-25.44	---	-13.00	12.44	140.0	H	7.0	-60.8

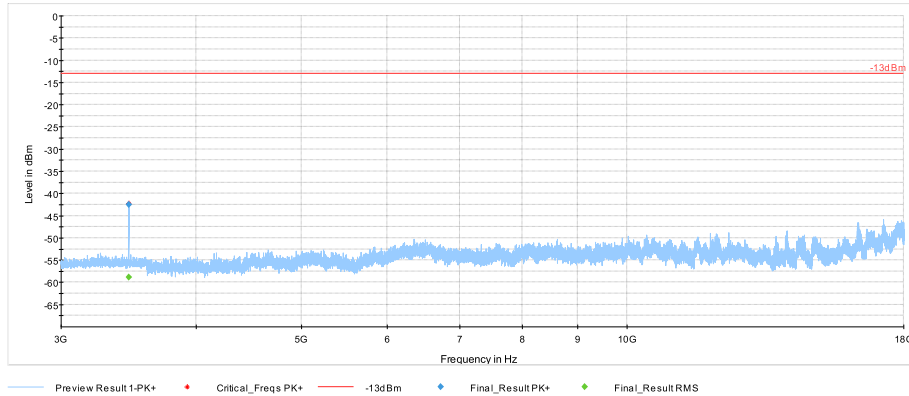


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

Plot #7 Radiated Emissions: 3 – 18 GHz

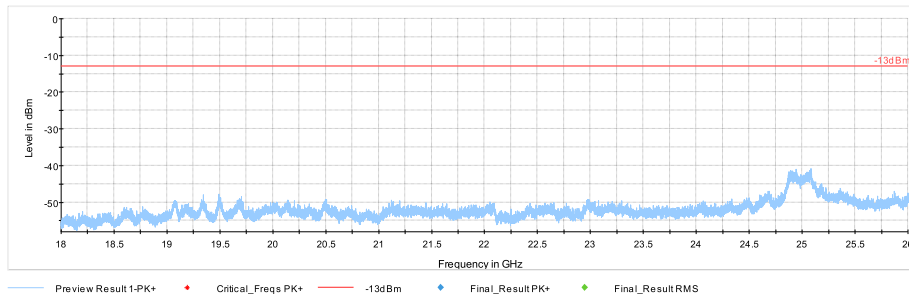
Channel: Mid

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3465.028833	---	-58.91	---	---	244.0	H	62.0	-103.0
3465.028833	-42.55	---	-13.00	29.55	244.0	H	62.0	-103.0



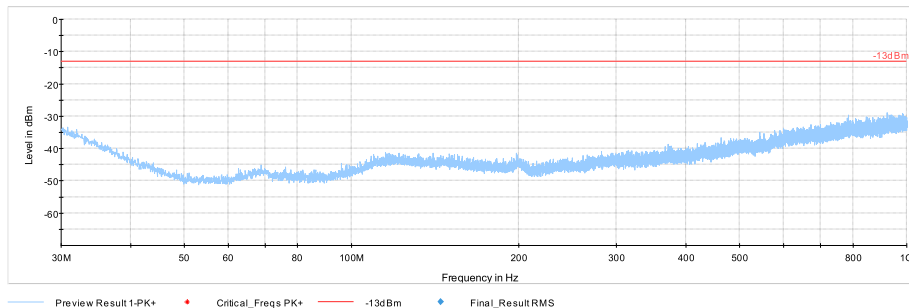
Plot #8 Radiated Emissions: 18 – 22 GHz

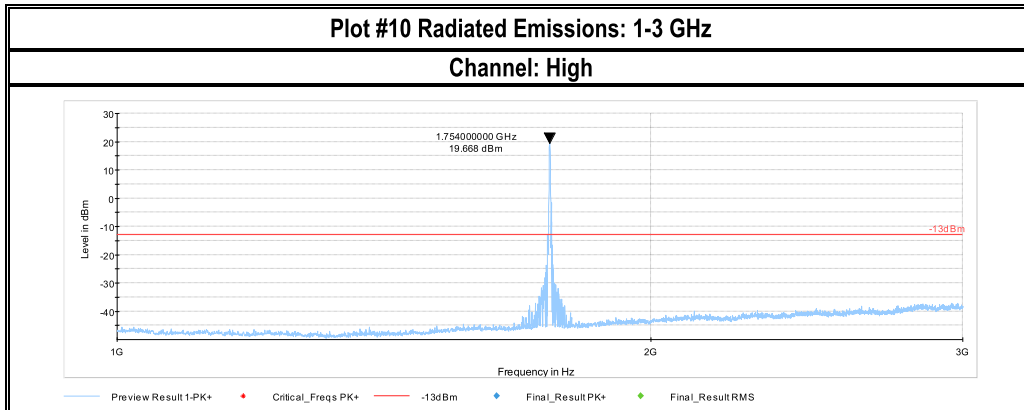
Channel: Mid



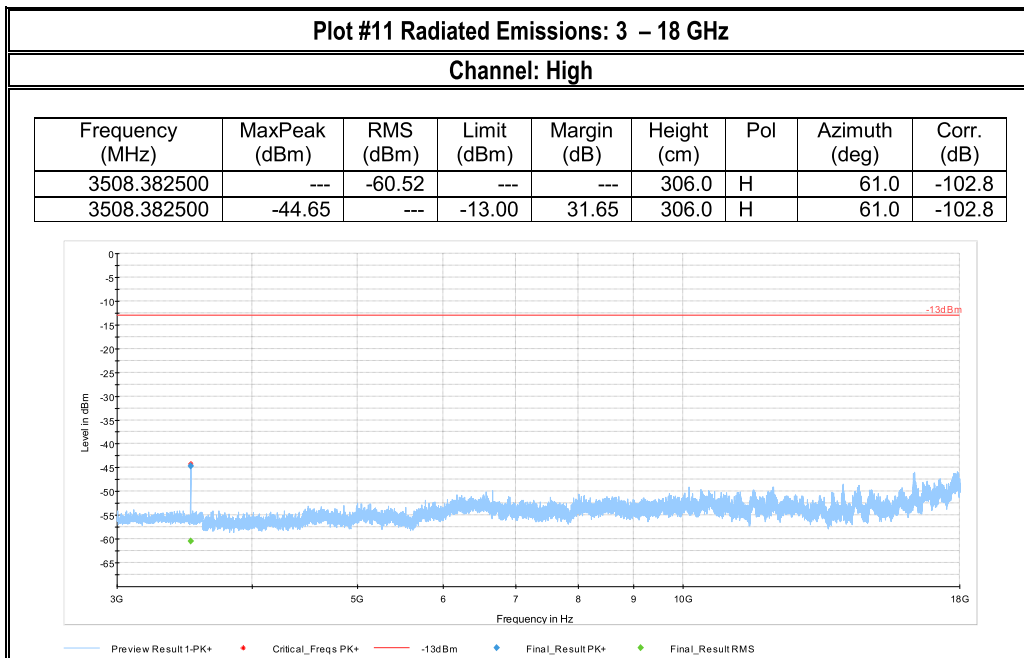
Plot #9 Radiated Emissions: 30 MHz – 1GHz

Channel: High

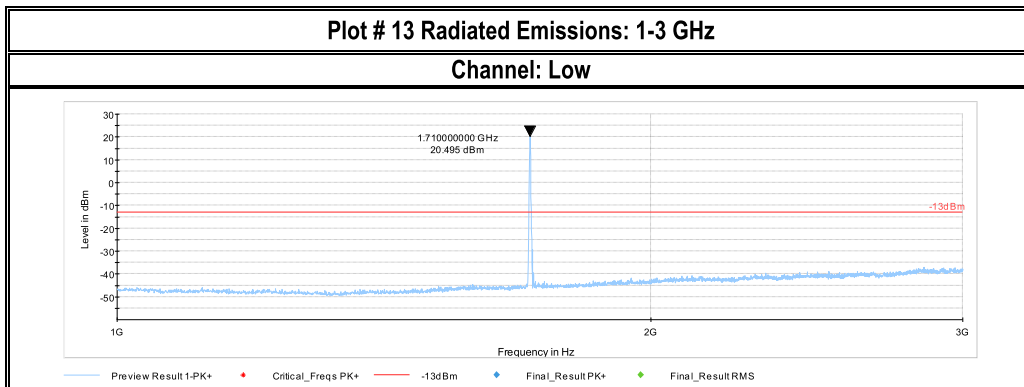
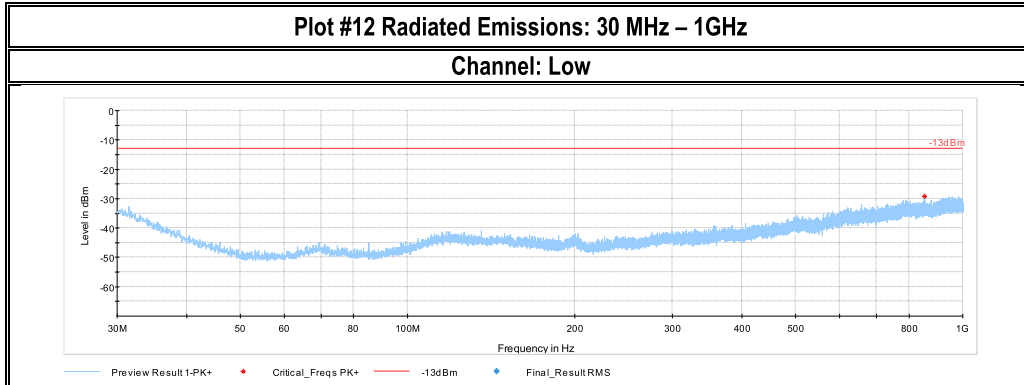




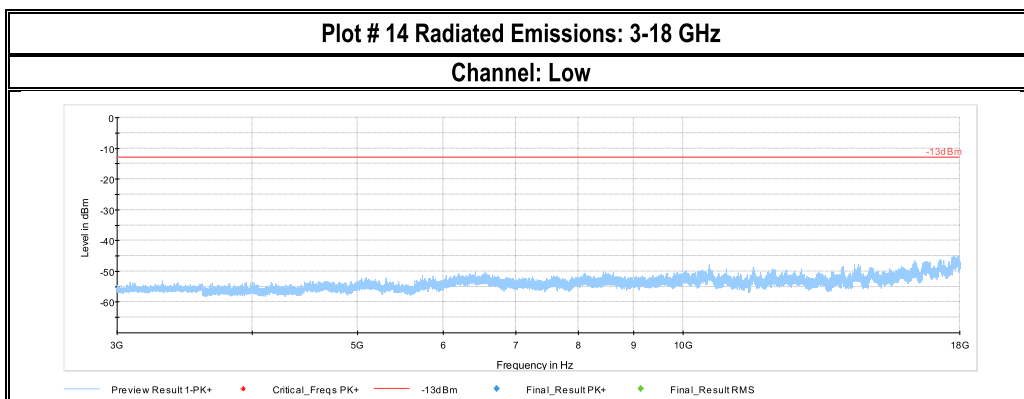
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

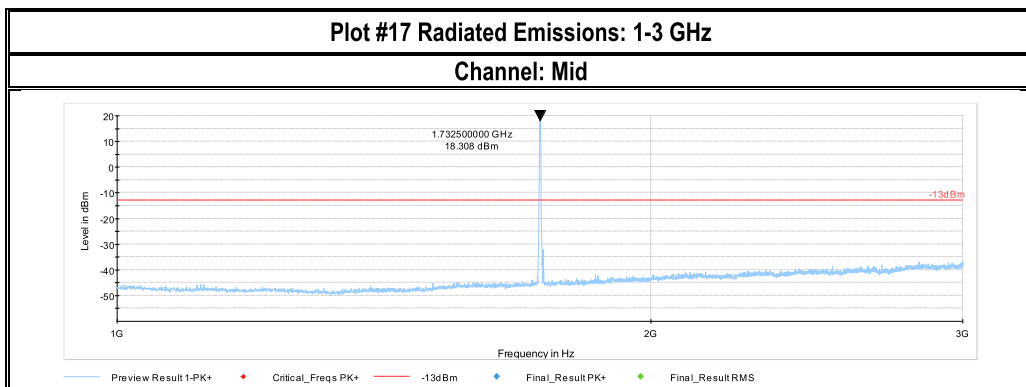
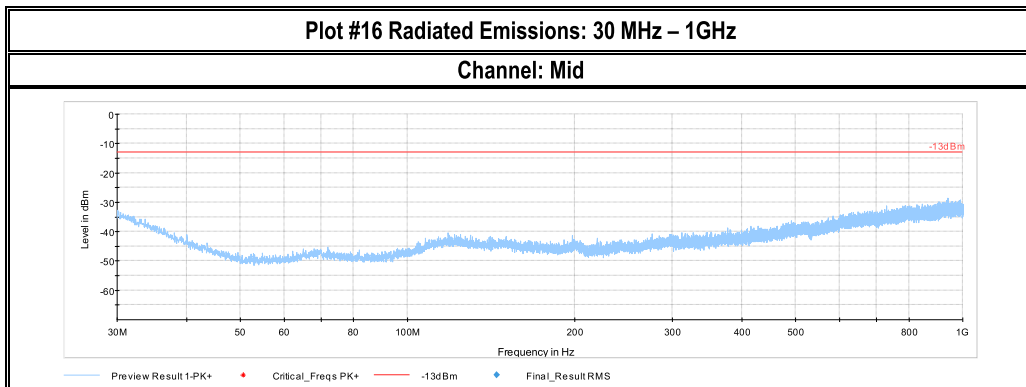
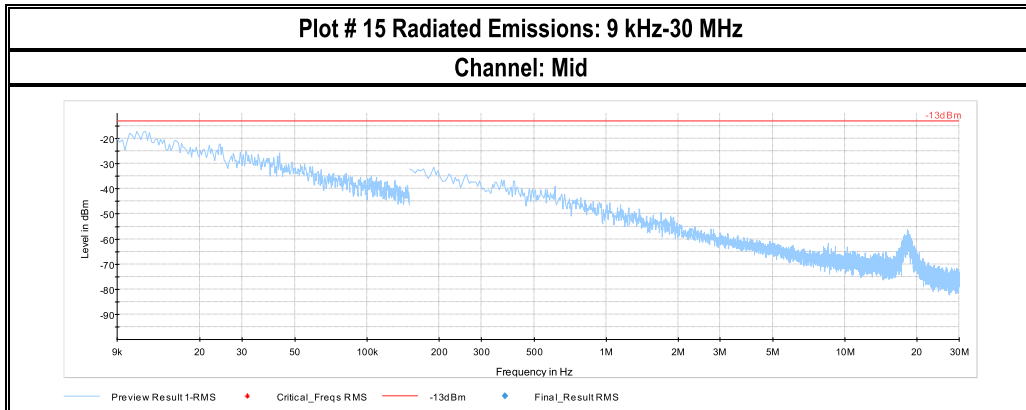


7.6.7 NB IoT B4



Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

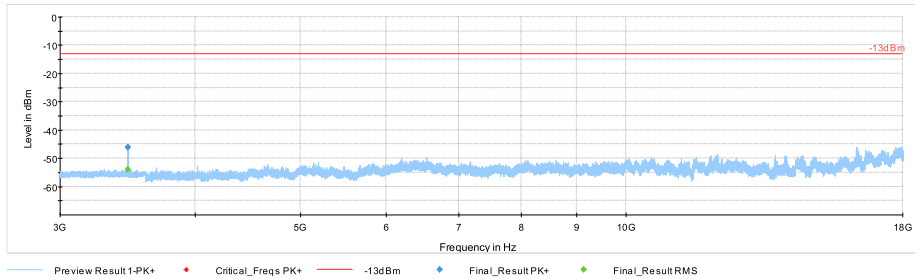




Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

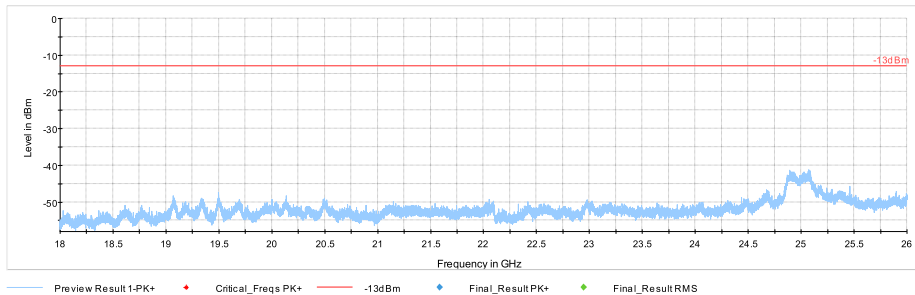
Plot #18 Radiated Emissions: 3-18 GHz

Channel: Mid



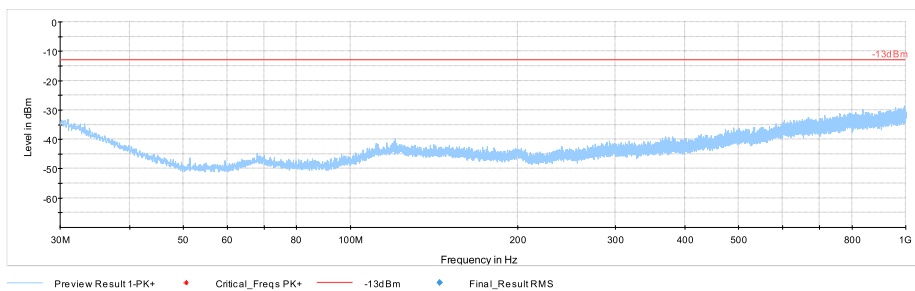
Plot #19 Radiated Emissions: 18-22 GHz

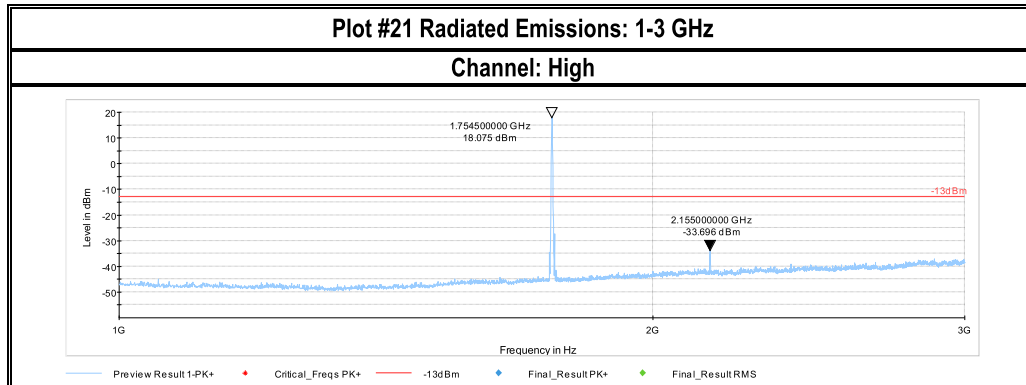
Channel: Mid



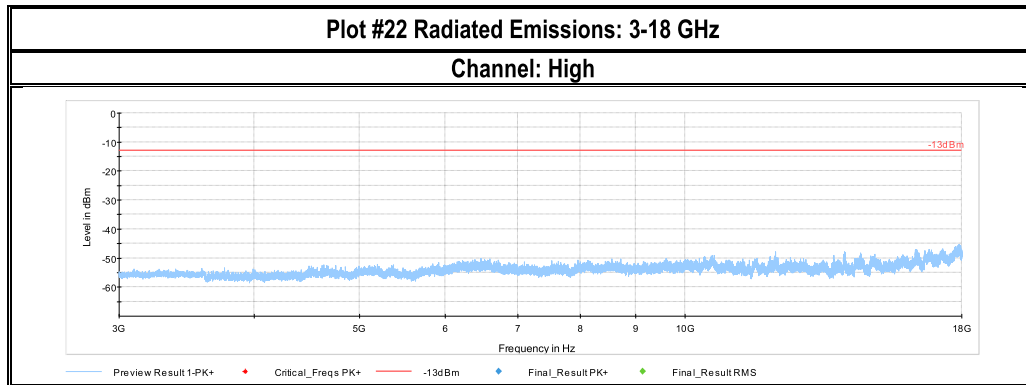
Plot #20 Radiated Emissions: 30 MHz – 1GHz

Channel: High

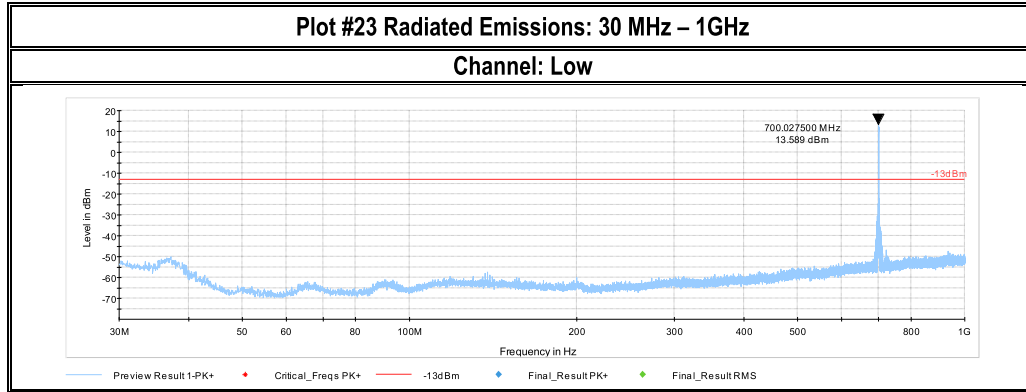




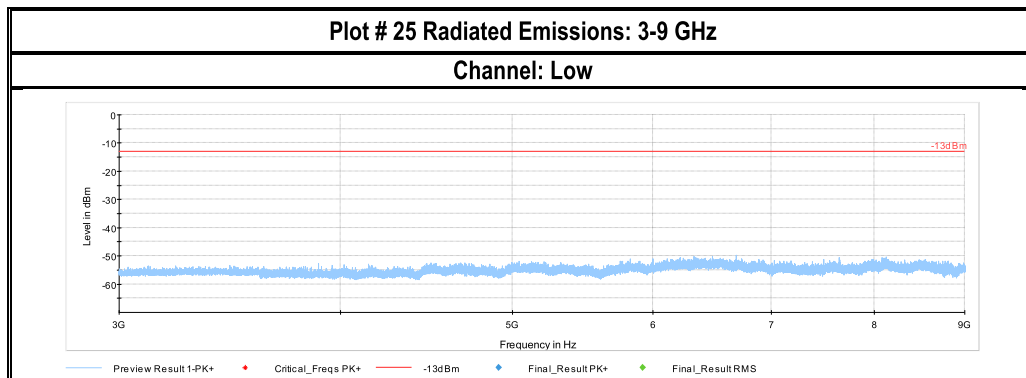
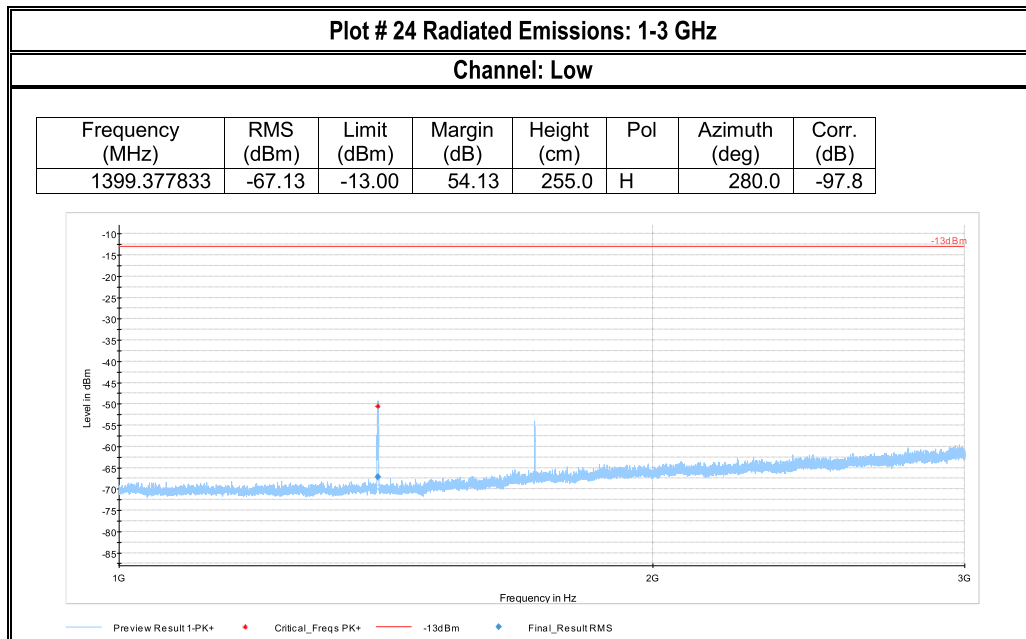
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



7.6.8 CAT M1 B12

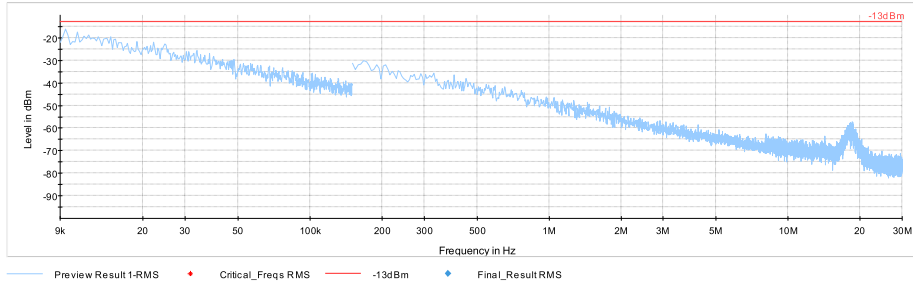


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



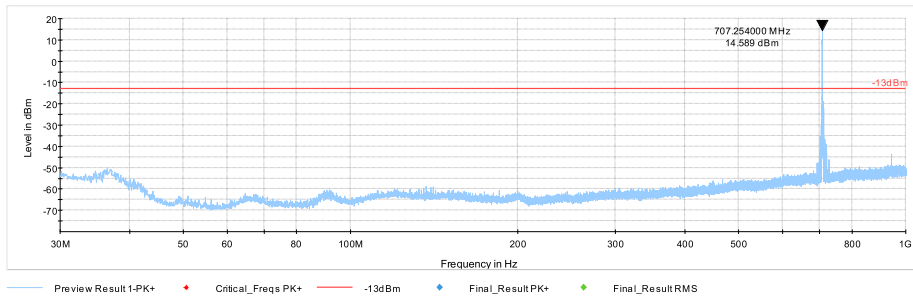
Plot # 26 Radiated Emissions: 9 kHz-30 MHz

Channel: Mid



Plot #27 Radiated Emissions: 30 MHz – 1GHz

Channel: Mid

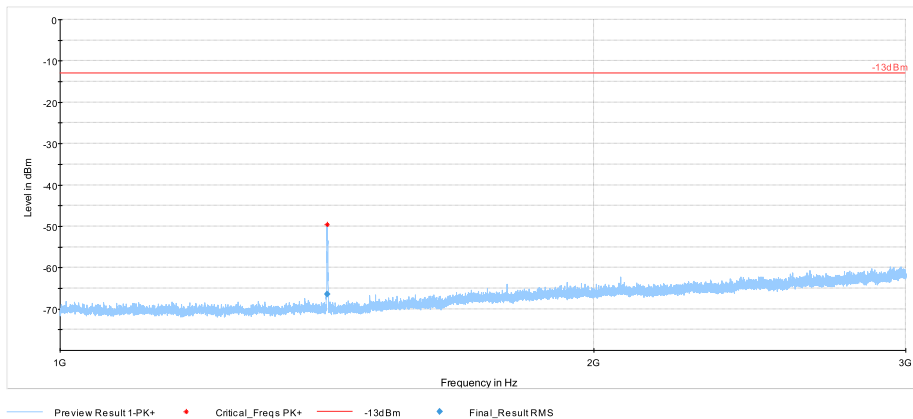


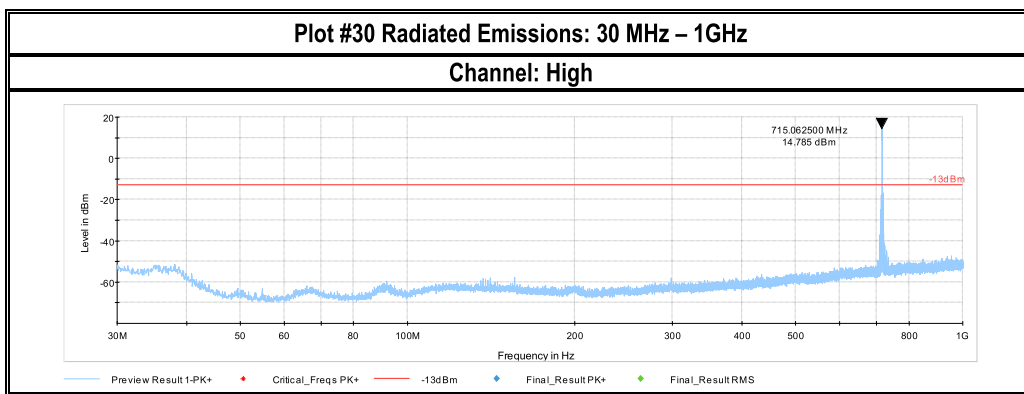
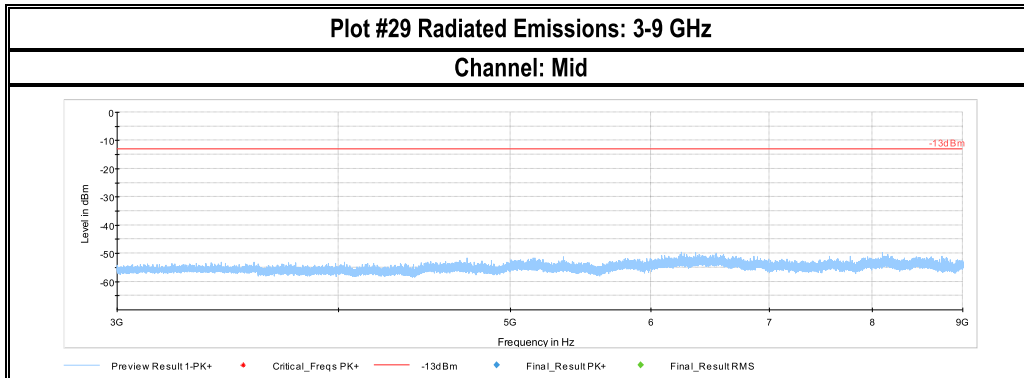
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

Plot #28 Radiated Emissions: 1-3 GHz

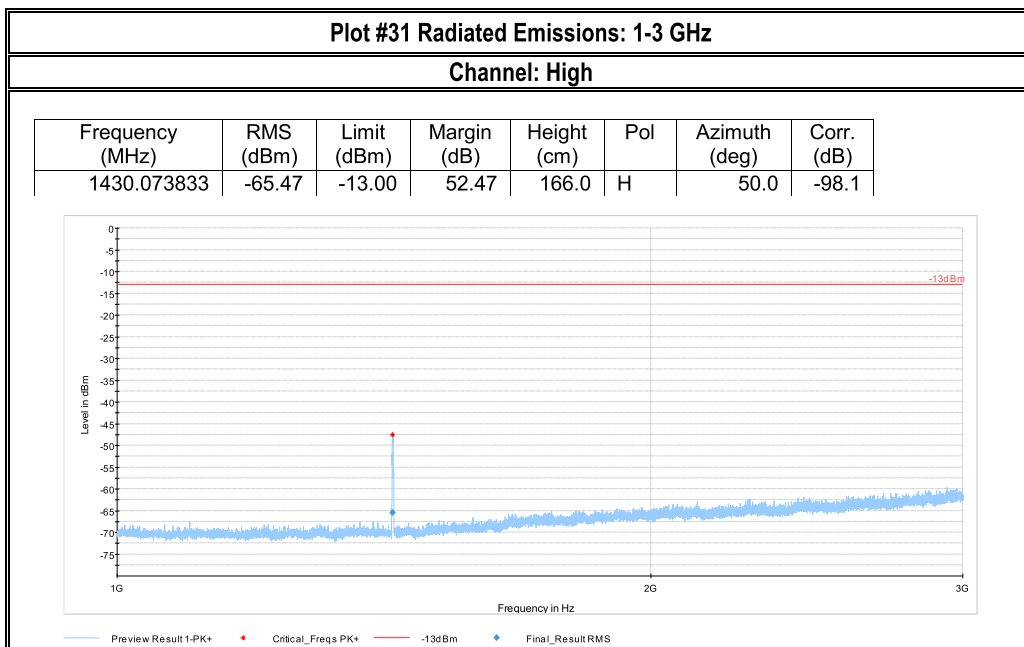
Channel: Mid

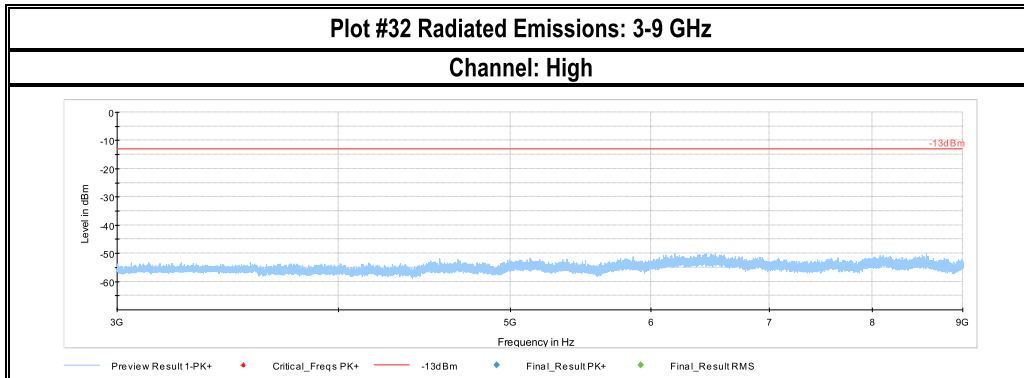
Frequency (MHz)	RMS (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1414.964917	-66.44	-13.00	53.44	158.0	H	58.0	-98.0



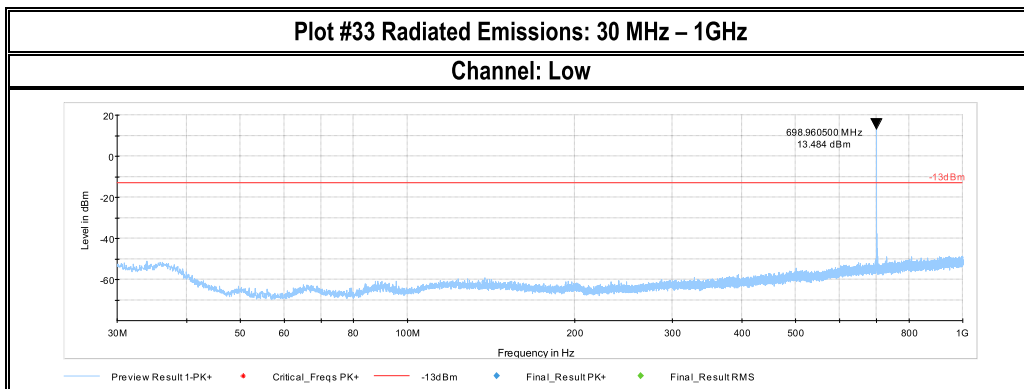


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

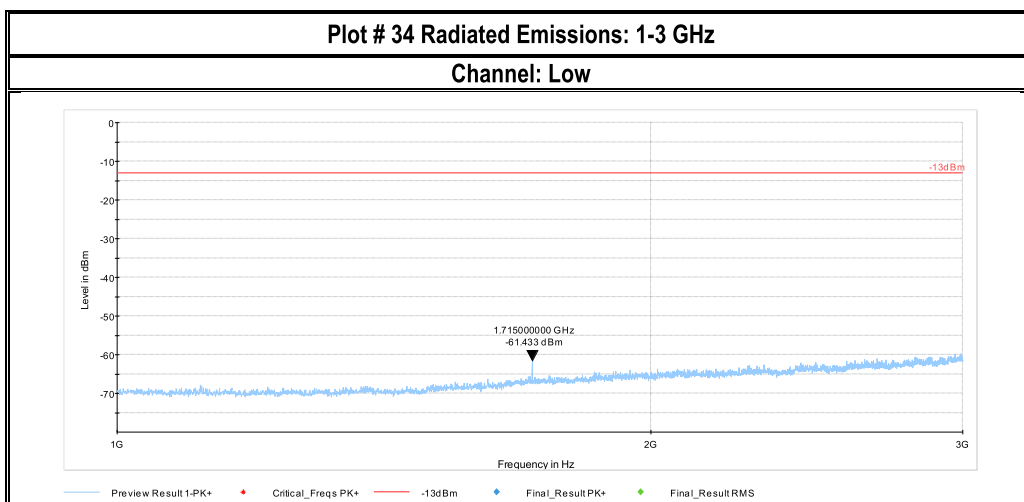




7.6.9 NB IoT B12

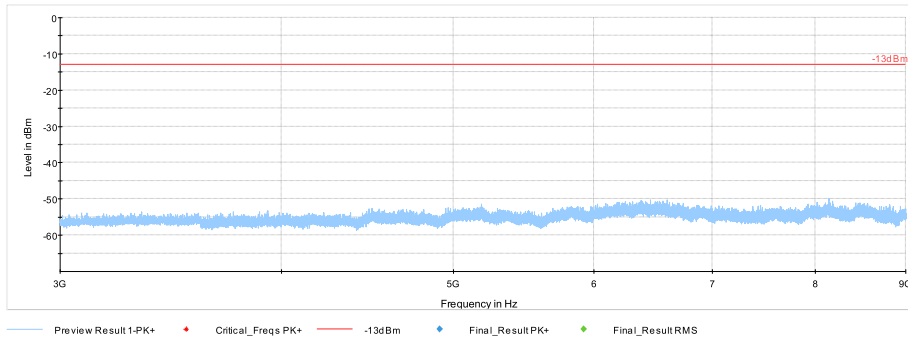


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



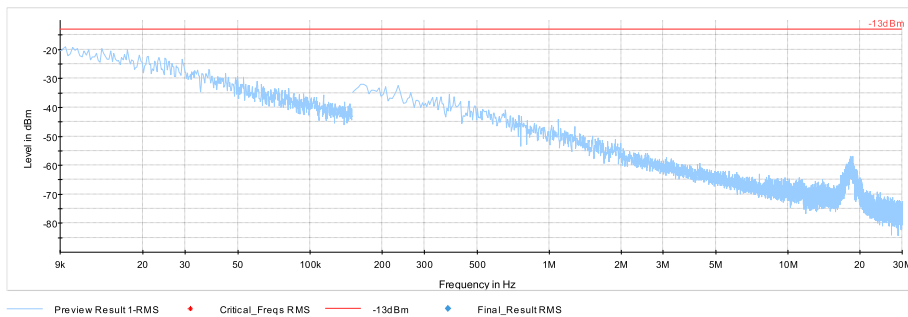
Plot # 35 Radiated Emissions: 3-9 GHz

Channel: Low



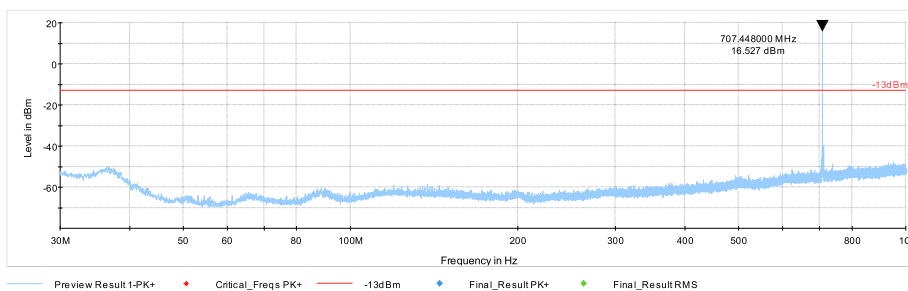
Plot # 36 Radiated Emissions: 9 kHz-30 MHz

Channel: Mid

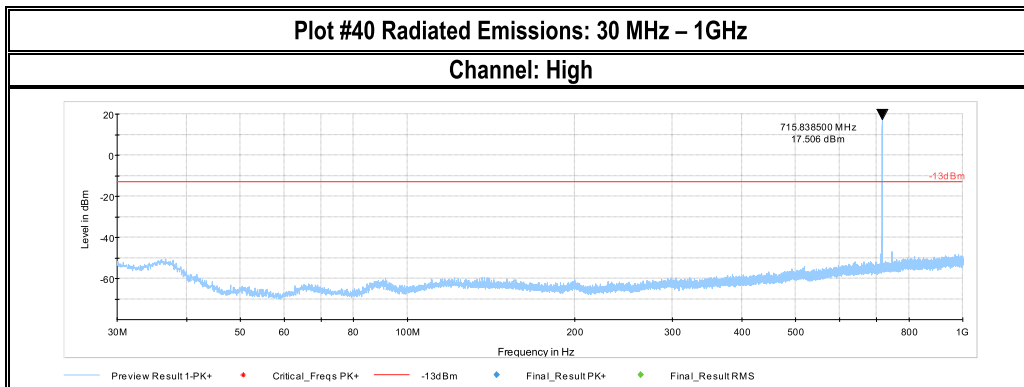
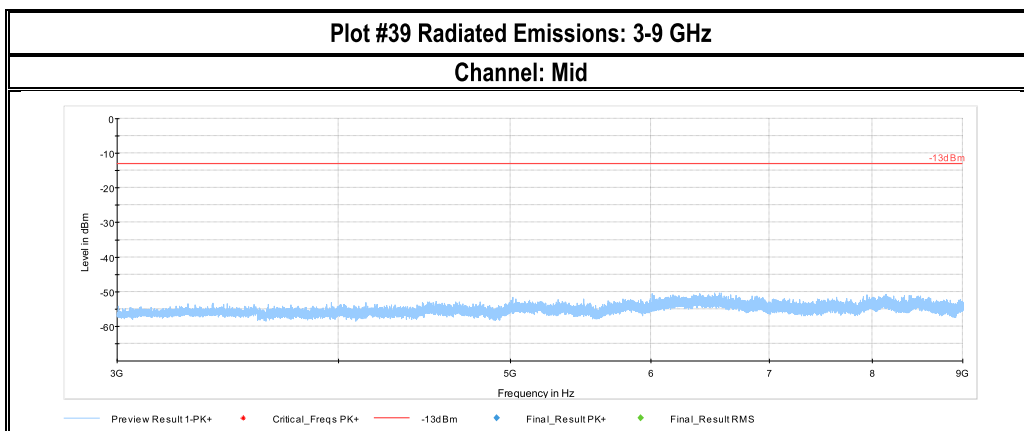
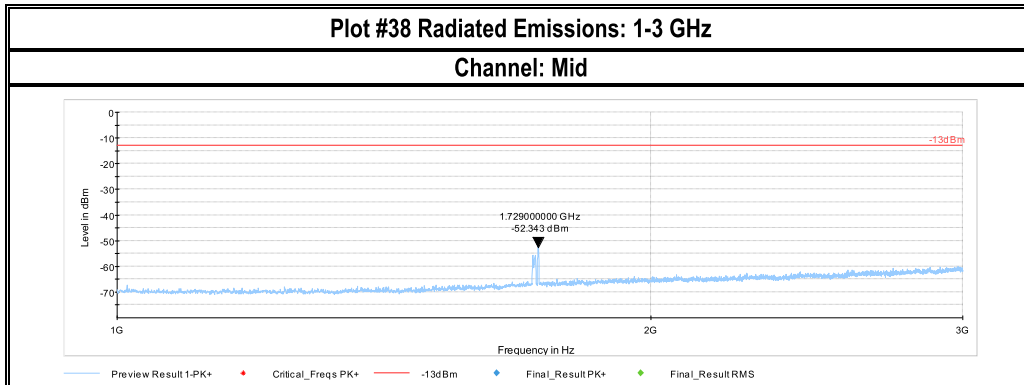


Plot #37 Radiated Emissions: 30 MHz – 1GHz

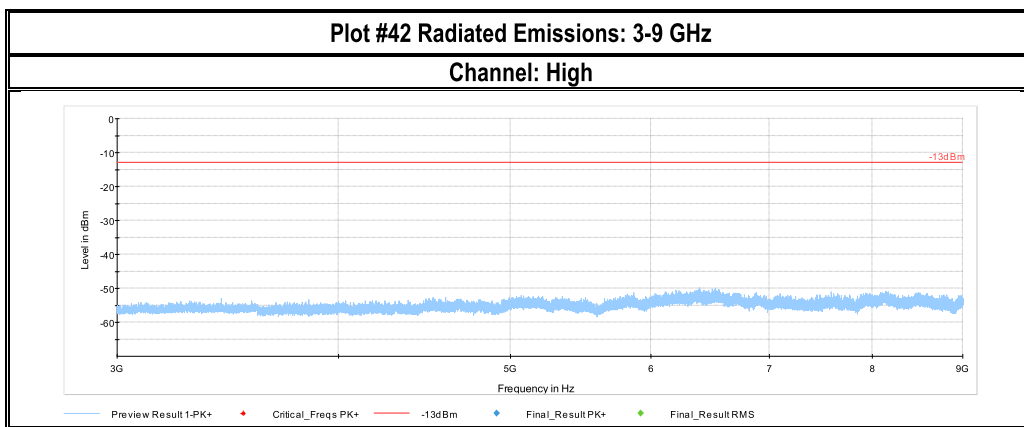
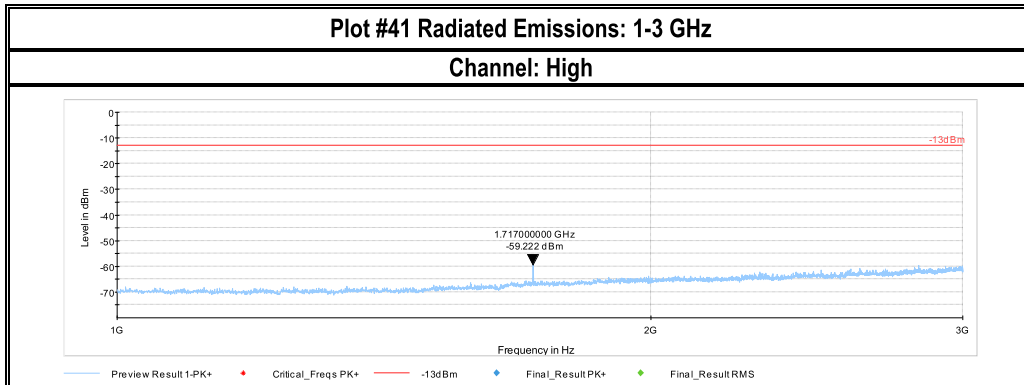
Channel: Mid



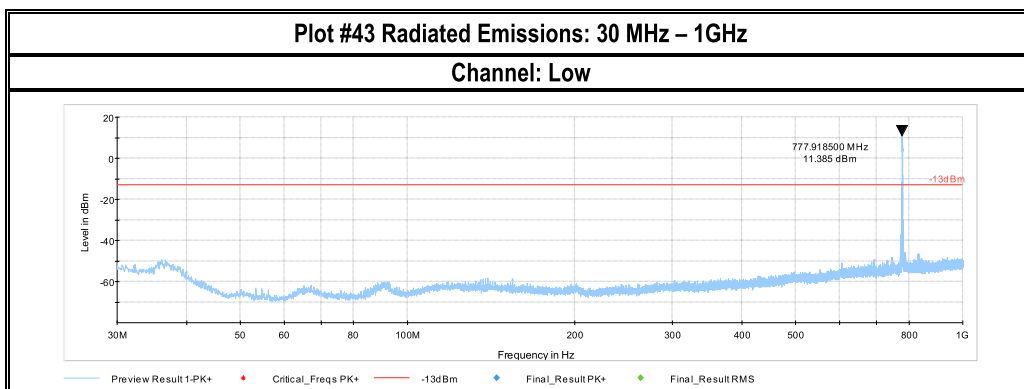
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



7.6.10 CAT M1 B13

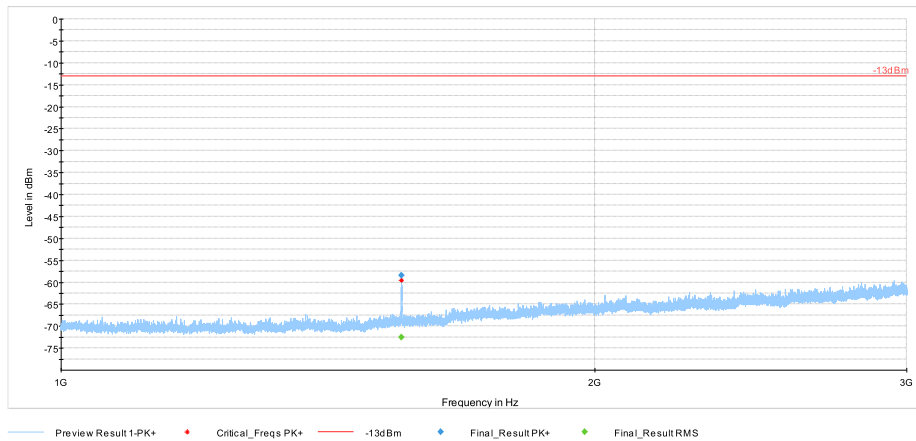


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

Plot # 44 Radiated Emissions: 1-3 GHz

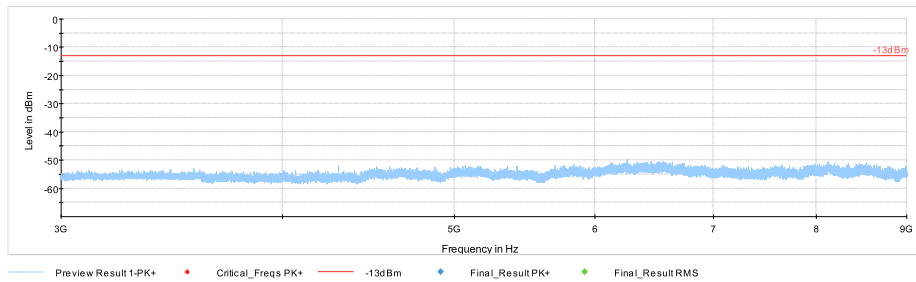
Channel: Low

Frequency (MHz)	MaxPeak (dBm)	RMS (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1555.813833	---	-72.53	---	---	140.0	H	12.0	-96.9
1555.813833	-58.46	---	-13.00	45.46	140.0	H	12.0	-96.9



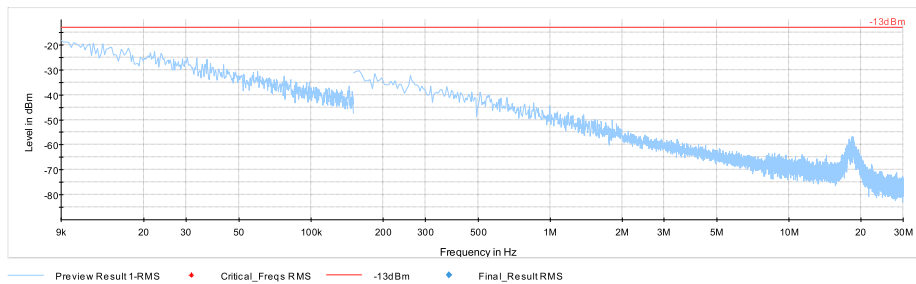
Plot # 45 Radiated Emissions: 3-9 GHz

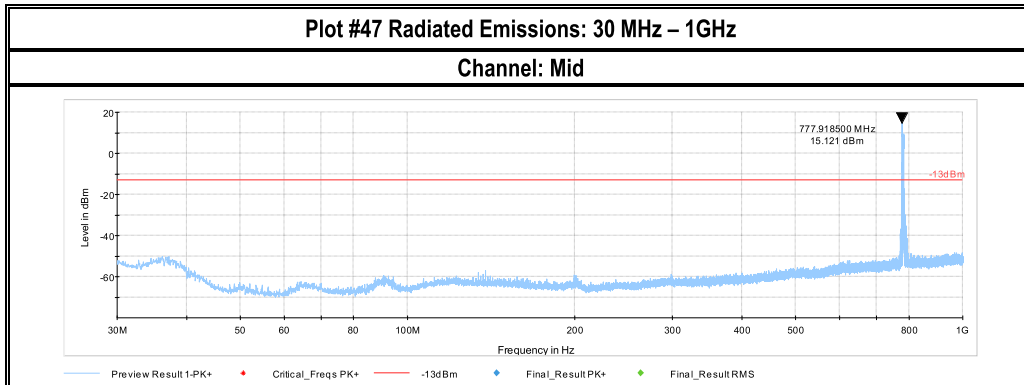
Channel: Low



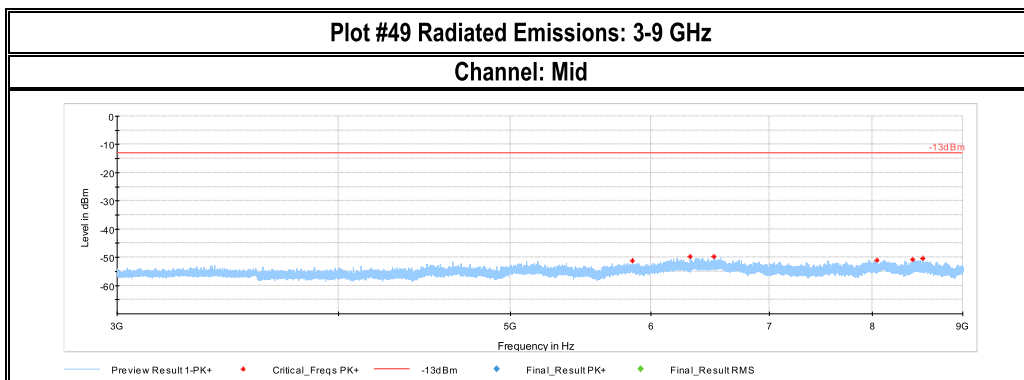
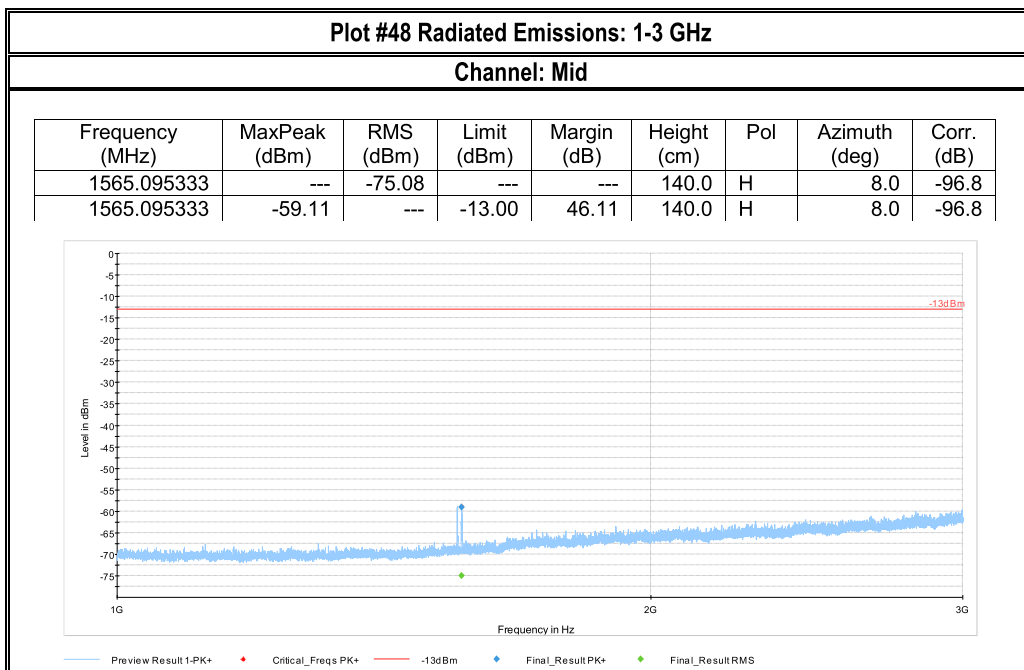
Plot # 46 Radiated Emissions: 9 kHz-30 MHz

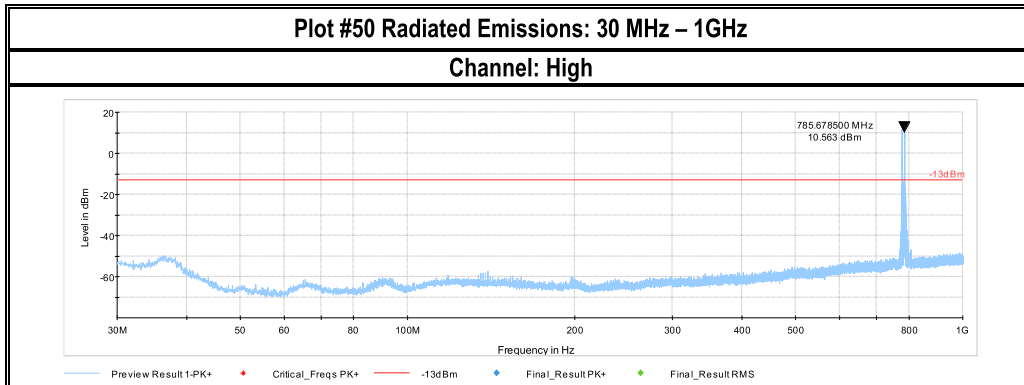
Channel: Mid



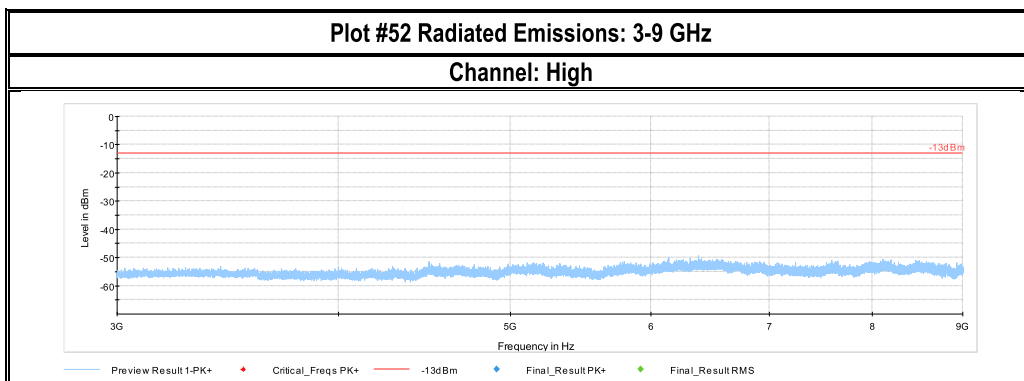
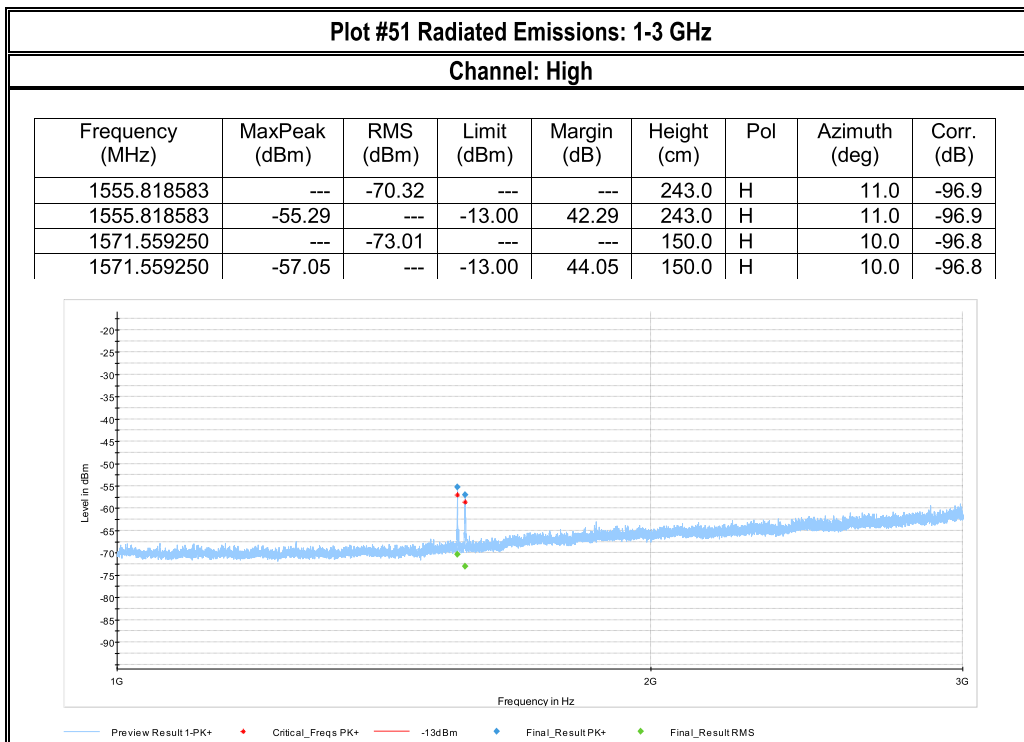


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

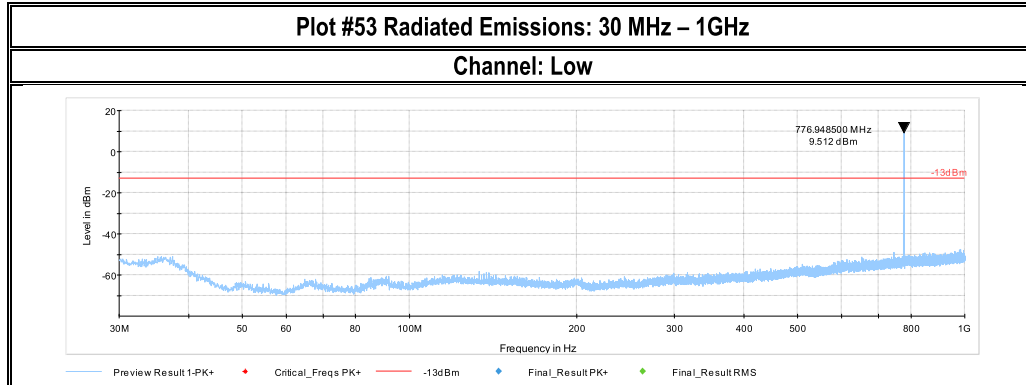




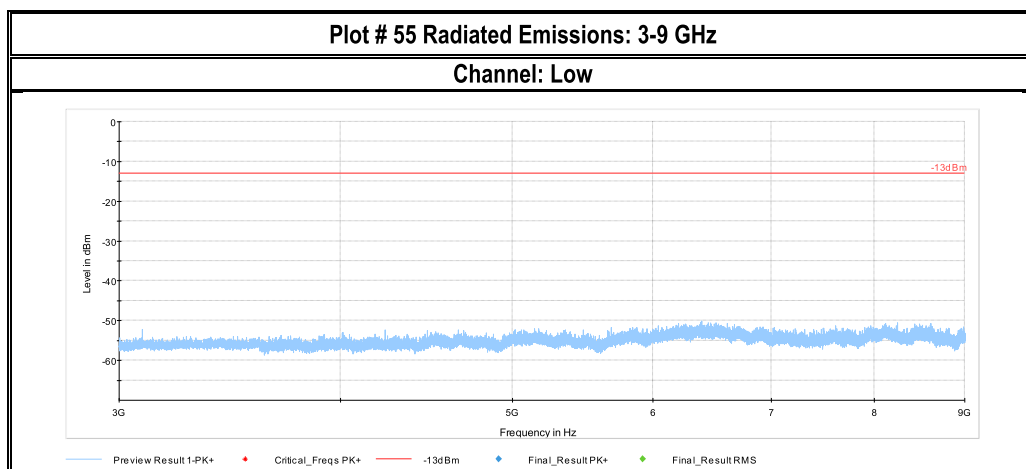
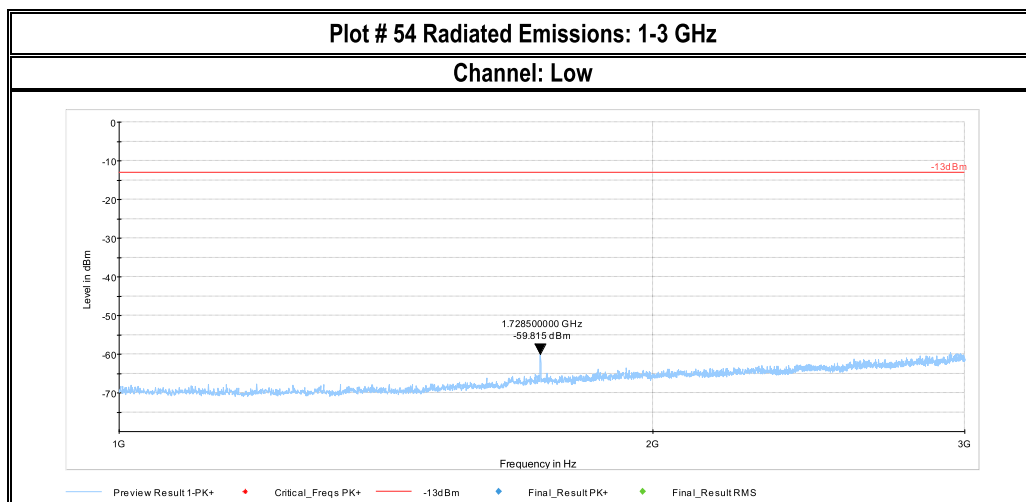
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.

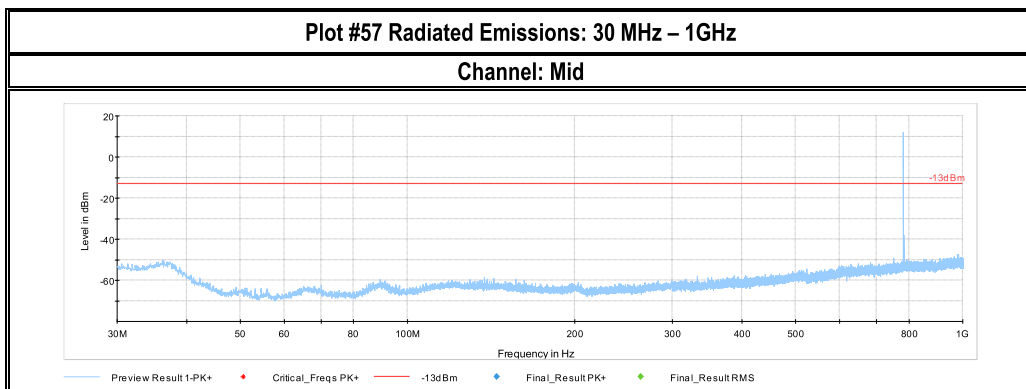
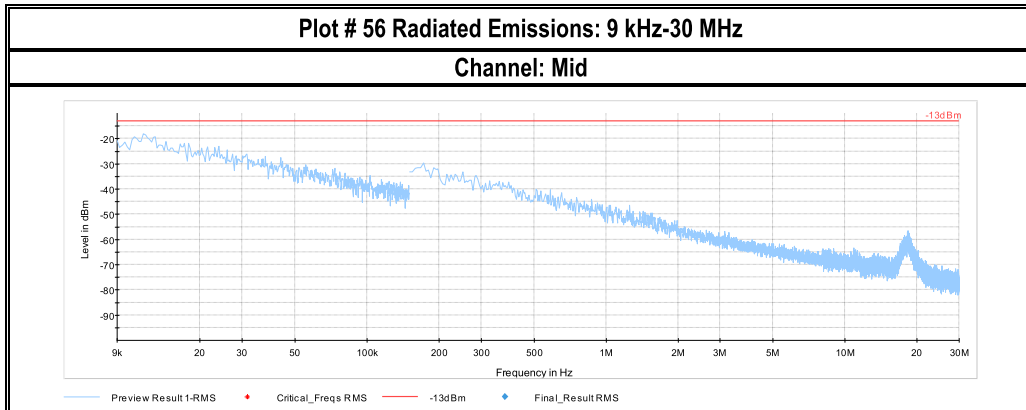


7.6.11 NB IoT B13

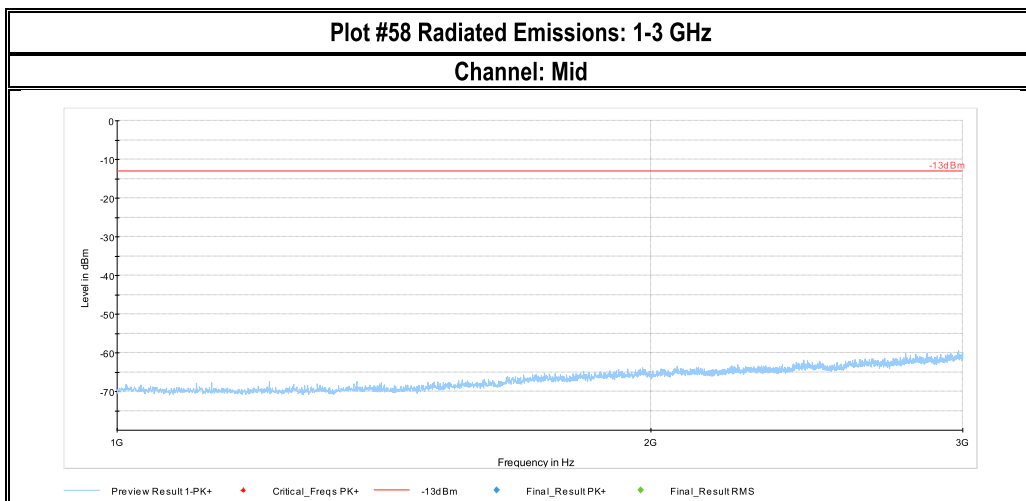


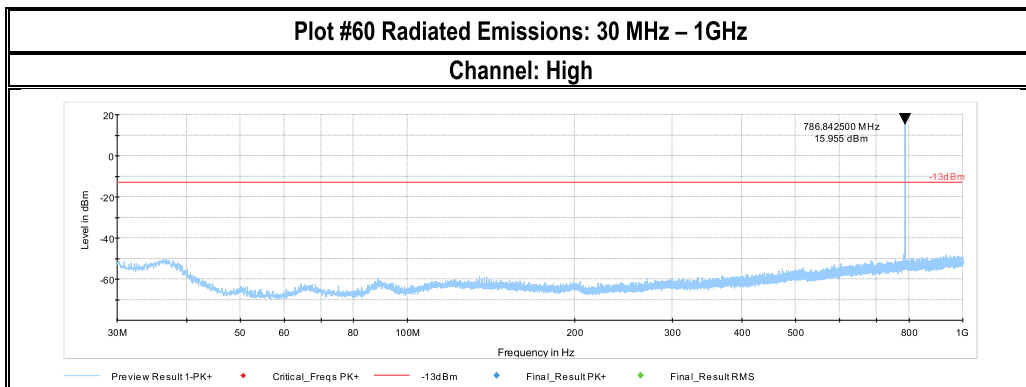
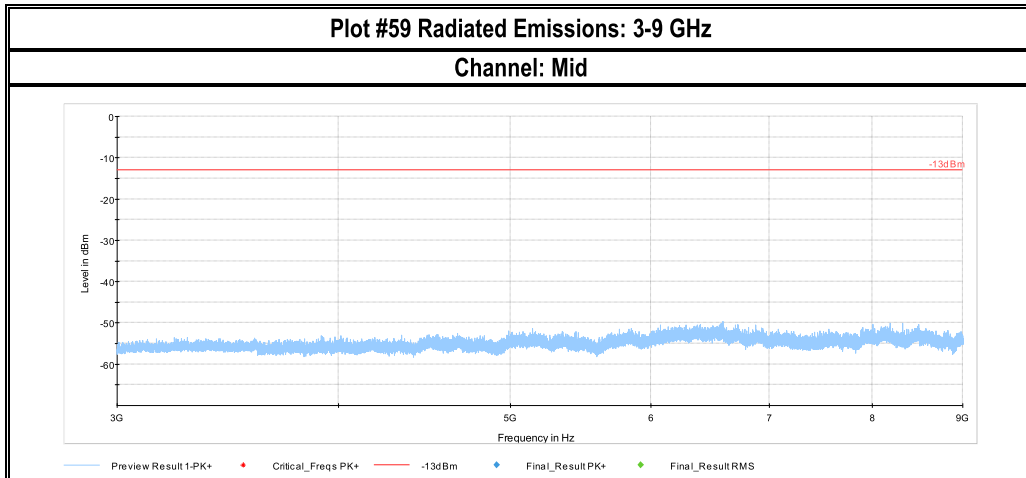
Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



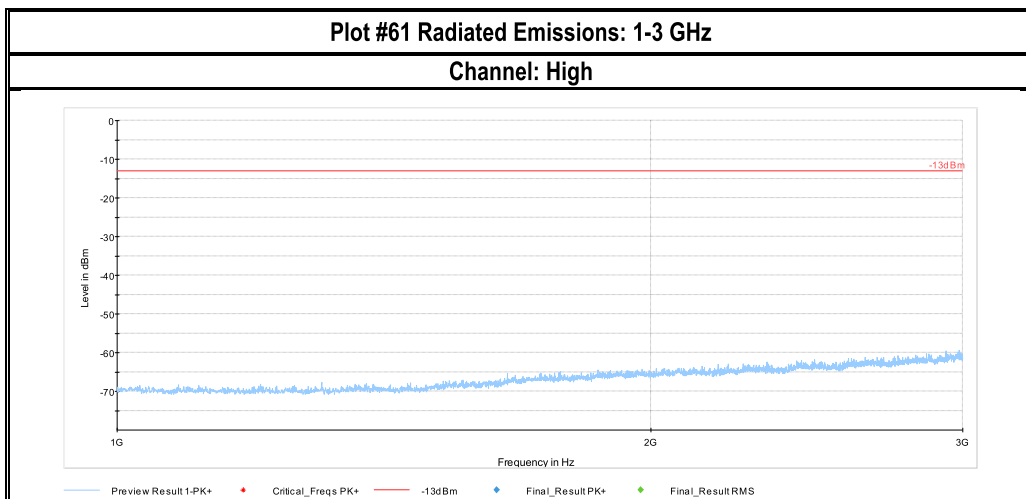


Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.





Note: Due to limited resolution during radiated measurements on the Band edges the manual conducted measurement from section 7.4 prevails.



Test Report #:
Date of Report

EMC_CTSMC-003-18001_FCC_27_Rev_1
2019-1-21

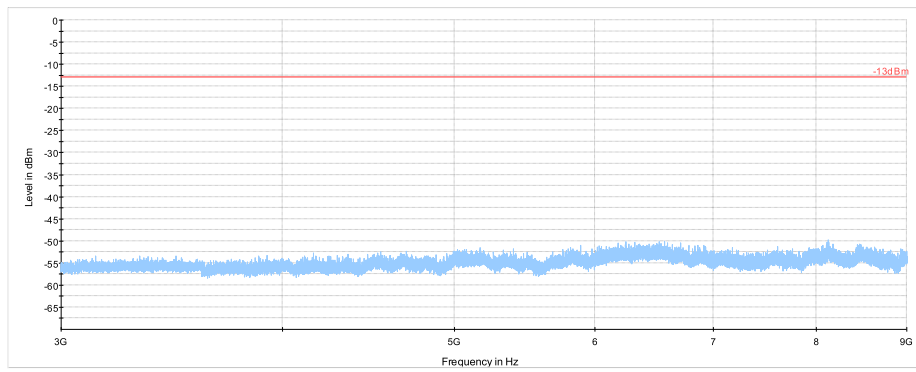
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FCC ID: XPYUBX18ZO01
IC ID: 8595A-UBX18ZO01



Plot #62 Radiated Emissions: 3-9 GHz

Channel: High



8 Test setup photos

Setup photos are included in supporting file name: "EMC_CTSMC-003-18001_FCC_Setup_photos.pdf"

9 Test Equipment And Ancillaries Used For Testing

Equipment Type	Manufacturer	Model	Serial #	Last Calibration Date
Loop Antenna	ETS Lindgren	6507	161344	10/26/2017
Biconlog Antenna	EMCO	3142E	166067	06/27/2017
Horn Antenna	EMCO	3115	35114	07/31/2017
Horn Antenna	ETS Lindgren	3117-PA	215984	01/26/2018
EMI Test Receiver	Rohde & Schwarz	ESU40	100251	01/31/2018
Spectrum Analyzer	Rohde & Schwarz	FSU40	101022	7/5/2017
Compact Digital Barometer	Control Company	35519-055	91119547	6/8/2017
Thermometer Humidity	Dickson	TM325	16253651	11/02/2017

Equipment used meets the measurement uncertainty requirements as required per applicable standards for 95% confidence levels.

Calibration due dates, unless defined specifically, falls on the last day of the month. Items indicated "N/A" for cal status either do not specifically require calibration or is internally characterized before use.



10 Revision History

Date	Report Name	Changes to report	Report prepared by
2018-10-26	EMC_CTSMC-003-18001_FCC_27	Initial Version	Kris Lazarov
2019-1-21	EMC_CTSMC-003-18001_FCC_27_Rev_1	Added RSS-130 assessment; Updated the power table in section 7.1.4 and 7.1.5; Updated the plots in section 7.1.6	Kris Lazarov