FCC / ISED & Test Report

For:
Juniper Systems

Model:
MS3

Product Description:
Ruggedized handheld tablet for field data collection.

Contains FCC ID: N7NEM7455; IC ID: 2417C-EM7455;
FCC ID: VSF30805; IC ID: 7980A-30805;
FCC ID: VSF25589; IC ID: 7980A-25589;
FCC ID: VSF26593; IC ID: 7980A-26593;
FCC ID: FIH76007, IC ID: 1548A-76007;
FCC ID: VSF27065 IC ID: 7980A-27065

Applied Rules and Standards:
47 CFR Parts 22, 24, 27, 90
RSS: 130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3, 199 Issue 3

REPORT #: EMC_JUNIP-042-22001_FCC_22_24_27_90

DATE: 2022-05-17

A2LA Accredited

IC recognized #
3462B-1

***CETECOM* Inc.**
411 Dixon Landing Road ◆ Milpitas, CA 95035 ◆ U.S.A.
Phone: + 1 (408) 586 6200 ◆ Fax: + 1 (408) 586 6299 ◆ E-mail: contact@cetecom.com ◆ http://www.cetecom.com
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1 Assessment

The following device as further described in section 3 of this report was evaluated against the applicable criteria specified in the Code of Federal Regulations Title 47 parts 22, 24, 27, 90 and Industry Canada Standards RSS-GEN issue 5, RSS-130 issue 2, RSS-132 issue 3, RSS-133 issue 6, RSS-139 Issue 3 and RSS-199 issue 3.

No deficiencies were ascertained.

Company Name	Product Description	Model
Juniper Systems	Ruggedized handheld tablet for field data collection.	MS3

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2022-05-17	Compliance	Kevin Wang (EMC Lab Manager)	kevin.wang@cetecom.com Digitally signed by: kevin.wang@cetecom.com DN: CN = kevin.wang@cetecom.com Date: 2022.05.17 15:18:53 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
2022-05-17	Compliance	Cheng Song (EMC Engineer)	cheng.song@cetecom.com Digitally signed by: cheng.song@cetecom.com DN: CN = cheng.song@cetecom.com Date: 2022.05.17 13:13:50 -07'00'

The test results of this test report relate exclusively to the test item specified in Section3.
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Street Address:	411 Dixon Landing Road
City/Zip Code	Milpitas, CA 95035
Country	USA
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
EMC Lab Manager:	Kevin Wang
Responsible Project Leader:	Sangeetha Sivaraman

2.2 Identification of the Client

Client's Name:	Juniper Systems
Street Address:	1132 West 1700 North
City/Zip Code	Logan UT 84321
Country	USA

2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as Client
Manufacturers Address:	
City/Zip Code	
Country	

3 Equipment Under Test (EUT)

3.1 EUT Specifications

Model:	MS3
HW Version :	Rev 09
SW Version :	22089
Contains FCC-ID :	N7NEM7455; VSF30805; VSF25589; VSF26593; FIH76007; VSF27065
Contains IC-ID:	2417C-EM7455; 7980A-30805; 7980A-25589; 7980A-26593; 1548A-76007; 7980A-27065
PMN:	Juniper Mesa 3 Rugged Tablet Computers
Product Description:	Ruggedized handheld tablet for field data collection.
Radio Information:	**Cellular:** • Module: Sierra Wireless EM7455 (FCC ID: N7NEM7455; IC ID: 2417C-EM7455) Cat-6 • LTE Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 20, 25, 26, 29, 41 • UMTS Bands I, II, III, IV, V, VIII **WiFi / Bluetooth:** • Module: Intel 9260D2WL (FCC ID: VSF30805; IC ID: 7980A-30805) • Technologies: 802.11a/b/g/n/ac; Bluetooth LE (v5.1) **GNSS:** • Module: u-blox NEO-M8N, NEO-M8T **Nano RFID Radio:** • Module: ThingMagic M6e-Nano (Juniper Systems FCC ID: VSF25589; IC ID: 7980A-25589) [FCC ID: QV5MERCURY6EN; IC ID: 5407A-MERCURY6EN] • Frequency of Operation: 917.4-927.2 MHz; 50 channels **Micro RFID Radio:** • Module: ThingMagic M6e-Micro (Juniper Systems FCC ID: VSF26593; IC ID: 7980A-26593) [FCC ID: QV5MERCURY6E-M; IC ID: 5407A-MERCURY6EM] • Frequency of Operation: 917.5-922.5 MHz; 50 channels **TransCore RFID Radio:** • Module: TransCore 76007 (FCC ID: FIH76007, ISED ID: 1548A-76007) • Frequency of Operation: 902.75-927.25 MHz

	Bluetooth (Extended Range): • Module: Silicon Labs WT41u-E (FCC ID: QOQWT41U; IC ID: 5123A-WT41U) [Juniper Systems FCC ID: VSF27065 IC ID: 7980A-27065] • Technologies: Bluetooth BDR/EDR v2.1
Vehicular:	No
Power Supply/ Rated Operating Voltage Range:	Low 11 VDC, Nominal 12 VDC, High 15 VDC
Operating Temperature Range	Low -20 ºC, High 50 ºC
Sample Revision	☐Prototype Unit; ☐Production Unit; ■Pre-Production

3.2 EUT Sample details

EUT #	Model	HW Version	SW Version	Comments
1	MS3	Rev 09	22089	

3.3 Accessory Equipment (AE) details

AE #	Type	Model	Manufacturer	Serial Number
1	AC / DC adapter	PSAA30R-120	PHIHONG	NA

3.4 Test Sample Configuration

EUT Set-up #	Combination of AE used for test set up	Comments
1	EUT#1 + AE#1	The radio of the EUT was configured to a fixed channel transmission with highest possible duty cycle using software that is not available to the end user. The internal antenna was connected. The EUT was connected to the AC mains through an AC / DC adapter.

3.5 Mode of Operation

Operation Mode	Radios	Comments
Op. 1	Cellular + WLAN 2.4G 802.11n20 HT0 + Nano RFID	During the testing process, the EUT was tested with transmitter sets on Cellular low, mid and high channels and highest possible duty cycle. For radiated measurements, all data in this report shows the worst case be-tween horizontal and vertical antenna polarizations and for all orientations of the EUT. Cellular transmits simultaneously with WLAN 2.4G and Nano RFID
Op. 2	Cellular + WLAN 2.4G 802.11n20 HT0 + Micro RFID	During the testing process, the EUT was tested with transmitter sets on Cellular low, mid and high channels and highest possible duty cycle. For radiated measurements, all data in this report shows the worst case be-tween horizontal and vertical antenna polarizations and for all orientations of the EUT. Cellular transmits simultaneously with WLAN 2.4G and Micro RFID
Op. 3	Cellular + WLAN 2.4G 802.11n20 HT0 + TransCore RFID	During the testing process, the EUT was tested with transmitter sets on Cellular low, mid and high channels and highest possible duty cycle. For radiated measurements, all data in this report shows the worst case be-tween horizontal and vertical antenna polarizations and for all orientations of the EUT. Cellular transmits simultaneously with WLAN 2.4G and TransCore RFID
Op. 4	Cellular + WLAN 2.4G 802.11n20 HT0 + BT(Extended Range)	During the testing process, the EUT was tested with transmitter sets on Cellular low, mid and high channels and highest possible duty cycle. For radiated measurements, all data in this report shows the worst case be-tween horizontal and vertical antenna polarizations and for all orientations of the EUT. Cellular transmits simultaneously with WLAN 2.4G and BT(Extended Range)

4 Subject of Investigation

The objective of the measurements done by CETECOM Inc. was to evaluate the compliance of the EUT against the relevant requirements specified in the Code of Federal Regulations Title 47 parts 22, 24, 27, 90 and ISED Standards RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3, RSS-199 Issue 3.

3.1 Dates of Testing:

04/12/2022 - 04/26/2022

3.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus, with 95% confidence interval (in dB delta to result), based on a coverage factor k=1.

Measurement System	EMC 1	EMC 2
Conducted Emissions (mains port)	1.12 dB	0.46 dB
Radiated Emissions (<30 MHz) (30 MHz – 1 GHz) (1 GHz – 3 GHz) (> 3 GHz)	 3.66 dB 3.17 dB 5.01 dB 4.0 dB	 3.88 dB 3.34 dB 4.45 dB 4.79 dB

3.3 Environmental Conditions during Testing:

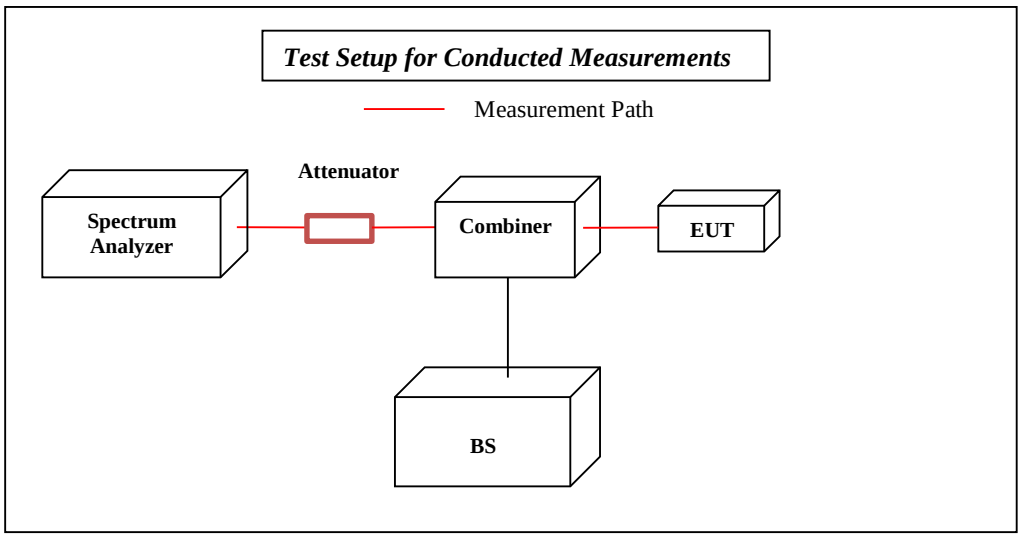
The following environmental conditions were maintained during the course of testing:

- Ambient Temperature: 20-25°C
- Relative humidity: 40-60%

Deviating test conditions are indicated at individual test description where applicable.

4 Measurement Procedures

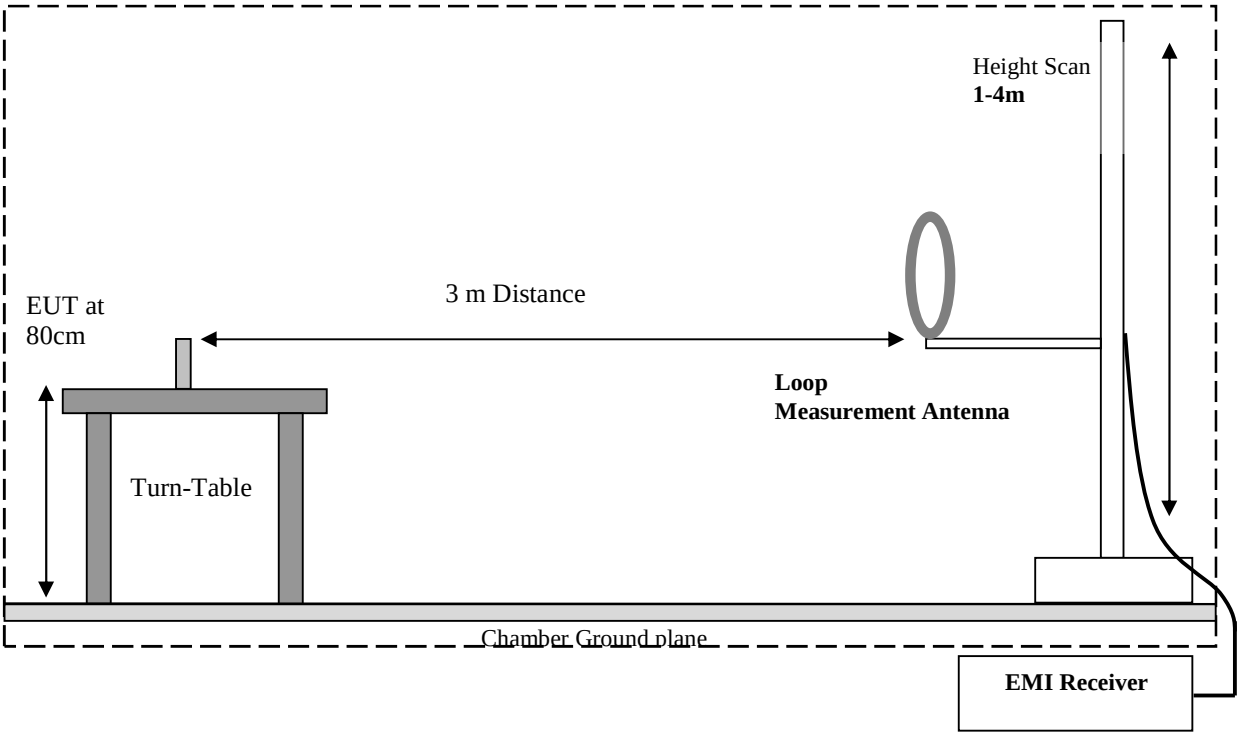
Testing is performed according to the guidelines provided in FCC publication (KDB) 971168 D01 v03r01 – "Measurement Guidance for Certification of Licensed Digital Transmitters" and according to relevant parts of ANSI/TIA-603-D-2010 as detailed below.



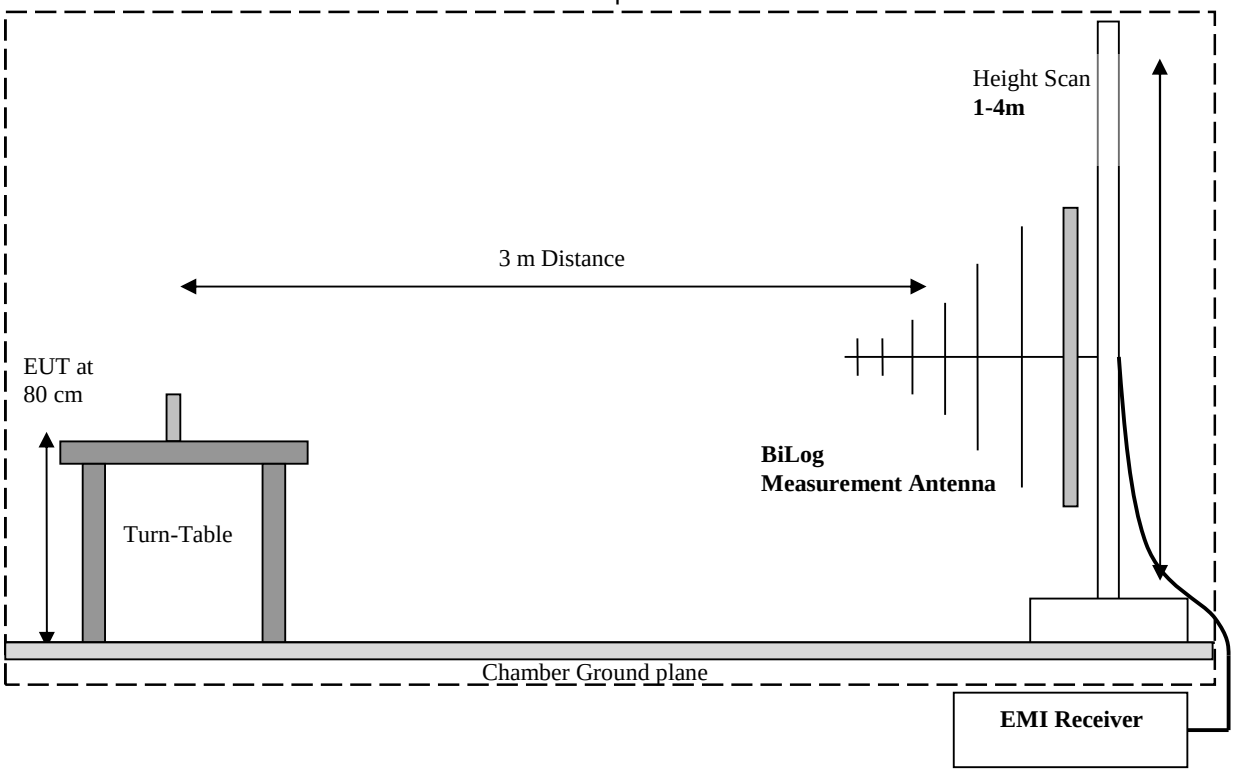
4.1 Radiated Measurement

- The exploratory measurement is accomplished by running a matrix of 16 sweeps over the required frequency range with R&S Test-SW EMC32 for 4 positions of the turntable, two orthogonal positions of the EUT and both antenna polarizations. This procedure exceeds the requirement of the above standards to cover the 3 orthogonal axis of the EUT. A max peak detector is utilized during the exploratory measurement. The Test-SW creates an overall maximum trace for all 12 sweeps and saves the settings for each point of this trace. The maximum trace is part of the test report.
- The 10 highest emissions are selected with an automatic algorithm of EMC32 searching for peaks in the noise floor and ensuring that broadband signals are not selected multiple times.
- The maxima are then put through the final measurement and again maximized in a 90deg range of the turntable, fine search in frequency domain and height scan between 1m and 4m.
- The above procedure is repeated for all possible ways of power supply to EUT and for all supported modulations.
- In case there are no emissions above noise floor level only the maximum trace is reported as described above.
- The results are split up into up to 4 frequency ranges due to antenna bandwidth restrictions. A magnetic loop is used from 9 kHz to 30 MHz, a Biconilog antenna is used from 30 MHz to 1 GHz, and two different horn antennas are used to cover frequencies up to 40 GHz.

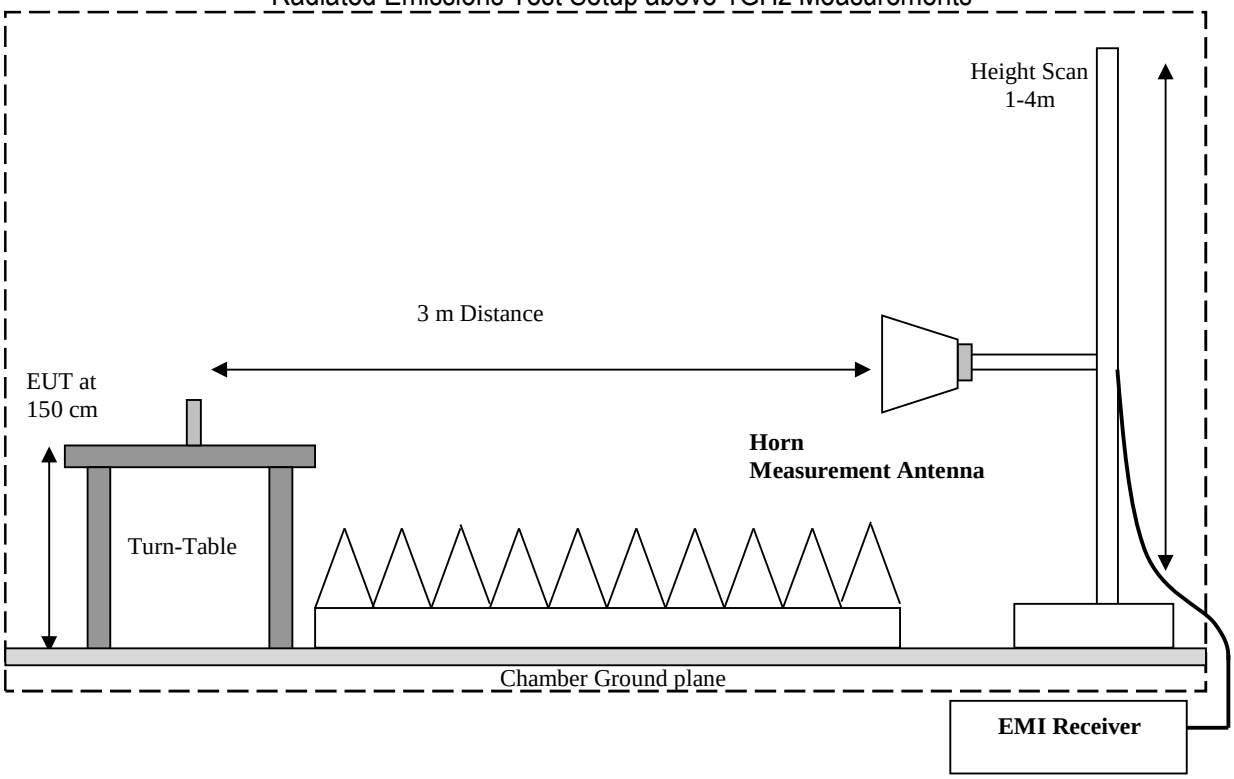
Radiated Emissions Test Setup below 30MHz Measurements



Radiated Emissions Test Setup 30MHz-1GHz Measurements



Radiated Emissions Test Setup above 1GHz Measurements



4.2 Sample Calculations for Field Strength Measurements

Field Strength is calculated from the Spectrum Analyzer/ Receiver readings, taking into account the following parameters:

- Measured reading in dBµV
- Cable Loss between the receiving antenna and SA in dB and
- Antenna Factor in dB/m

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the following equation:

FS (dBµV/m) = Measured Value on SA (dBµV)+ Cable Loss (dB)+ Antenna Factor (dB/m)

Example:

Frequency (MHz)	Measured SA (dBµV)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dBµV/m)
1000	80.5	3.5	14	98.0

5 Measurement Results Summary

5.1 Part 22 / RSS-132

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §22.913 (a)	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1
§2.1055; §22.355	Frequency Tolerance	Extreme Temperature and Voltage	-	☐	☐	☐	■	Note 1
§2.1049; §22.917	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §22.917	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §22.917	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Note 1
§2.1053; §22.917	Radiated Spurious Emissions	Nominal	Op. 1 Op. 2 Op. 3 Op. 4	■	☐	☐	☐	Complies

NA= Not Applicable; NP= Not Performed.
Note 1: Leveraged from module certification report under FCC ID: N7NEM7455

5.2 Part 24 / RSS-133

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §24.232 (a)	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1
§2.1055; §24.235	Frequency Stability	Extreme Temperature and Voltage	-	☐	☐	☐	■	Note 1
§2.1049; §24.238	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §24.238	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §24.238	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Note 1
§2.1053; §24.238	Radiated Spurious Emissions	Nominal	Op. 1 Op. 2 Op. 3 Op. 4	■	☐	☐	☐	Complies

NA= Not Applicable; NP= Not Performed.
Note 1: Leveraged from module certification report under FCC ID: N7NEM7455

5.3 Part 27, 90 / RSS-130, RSS-139, RSS-199

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§2.1046; §27.50	RF Output Power	Nominal	-	☐	☐	☐	■	Note 1
§2.1055; §27.54	Frequency Stability	Extreme Temperature and Voltage	-	☐	☐	☐	■	Note 1
§2.1049; §27.53	Occupied Bandwidth	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §27.53	Band Edge Compliance	Nominal	-	☐	☐	☐	■	Note 1
§2.1051; §27.53	Conducted Spurious Emissions	Nominal	-	☐	☐	☐	■	Note 1
§2.1053; §27.53	Radiated Spurious Emissions	Nominal	Op. 1 Op. 2 Op. 3 Op. 4	■	☐	☐	☐	Complies

NA= Not Applicable; NP= Not Performed.
Note 1: Leveraged from module certification report under FCC ID: N7NEM7455

6 Test Result Data

6.1 Radiated Spurious Emissions

6.1.1 Measurement utilizing KDB 971168 D01 Power Meas License Digital Systems v03r01, and according to ANSI/TIA-603-D-2010

Spectrum Analyzer Settings for FCC 22

Frequency Range	30MHz – 1 GHz	1 – 1.58 GHz	1.58 – 9 GHz
Resolution Bandwidth	100 kHz	1 MHz	1 MHz
Video Bandwidth	100 kHz	1 MHz	1 MHz
Detector	Peak	Peak	Peak
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep Time	Auto	Auto	Auto

Spectrum Analyzer Settings for FCC 24 and 27

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

6.1.2 Limits:

6.1.2.1 FCC Part 22.917 (a); FCC Part 24.238 (a); FCC Part 27.53 (h)

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.

6.1.2.2 RSS-132 Part 5.5; RSS-133 Part 6.5; 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 log10p (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 log10 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.

6.1.3 Test conditions and setup:

Ambient Temperature (°C)	EUT Set-Up #	EUT operating mode	Power Input
22.0	1	Op. 1 Op. 2 Op. 3 Op. 4	120 VAC

6.1.4 Measurement result:

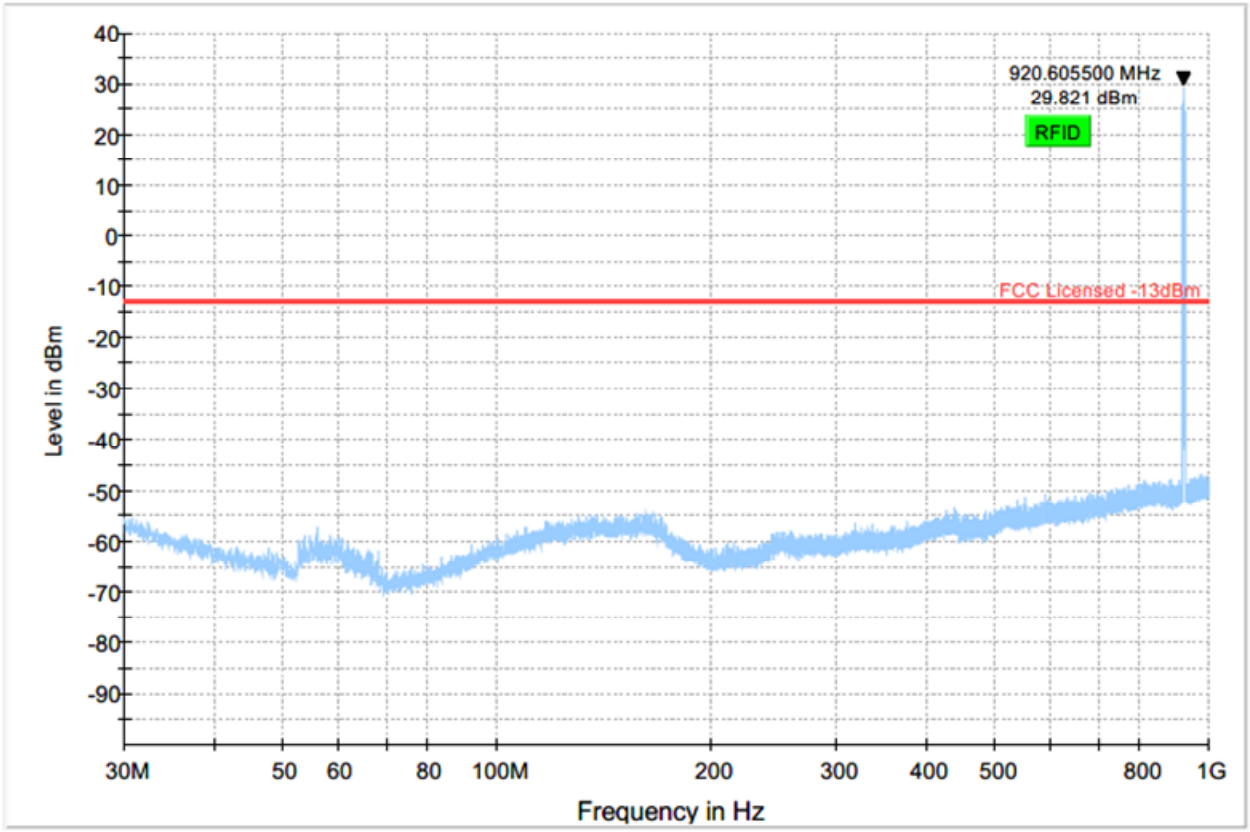
Plot #	Cellular Band	Operation Mode	Scan Frequency	Limit (dBm)	Result
1-3	UMTS II	Op. 1	30 MHz – 18 GHz	-13	Pass
4-6	UMTS IV		30 MHz – 18 GHz	-13	Pass
7-9	UMTS V		30 MHz – 18 GHz	-13	Pass
10-12	LTE B2		30 MHz – 18 GHz	-13	Pass
13-15	LTE B4		30 MHz – 18 GHz	-13	Pass
16-18	LTE B5		30 MHz – 18 GHz	-13	Pass
19-21	LTE B7		30 MHz – 18 GHz	-13	Pass
22-24	LTE B12		30 MHz – 18 GHz	-13	Pass
25-27	LTE B13		30 MHz – 18 GHz	-13	Pass
28-30	LTE B25		30 MHz – 18 GHz	-13	Pass
31-33	LTE B26		30 MHz – 18 GHz	-13	Pass
34-36	LTE B41		30 MHz – 18 GHz	-13	Pass
37-39	UMTS II	Op. 2	30 MHz – 18 GHz	-13	Pass
40-42	UMTS IV		30 MHz – 18 GHz	-13	Pass
43-45	UMTS V		30 MHz – 18 GHz	-13	Pass
46-48	LTE B2		30 MHz – 18 GHz	-13	Pass
49-51	LTE B4		30 MHz – 18 GHz	-13	Pass
52-54	LTE B5		30 MHz – 18 GHz	-13	Pass
55-57	LTE B7		30 MHz – 18 GHz	-13	Pass
58-60	LTE B12		30 MHz – 18 GHz	-13	Pass
61-63	LTE B13		30 MHz – 18 GHz	-13	Pass
64-66	LTE B25		30 MHz – 18 GHz	-13	Pass
67-69	LTE B26		30 MHz – 18 GHz	-13	Pass
70-72	LTE B41		30 MHz – 18 GHz	-13	Pass
73-75	UMTS II	Op. 3	30 MHz – 18 GHz	-13	Pass
76-78	UMTS IV		30 MHz – 18 GHz	-13	Pass
79-81	UMTS V		30 MHz – 18 GHz	-13	Pass
82-84	LTE B2		30 MHz – 18 GHz	-13	Pass
85-87	LTE B4		30 MHz – 18 GHz	-13	Pass
88-90	LTE B5		30 MHz – 18 GHz	-13	Pass
91-93	LTE B7		30 MHz – 18 GHz	-13	Pass
94-96	LTE B12		30 MHz – 18 GHz	-13	Pass
97-99	LTE B13		30 MHz – 18 GHz	-13	Pass
100-102	LTE B25		30 MHz – 18 GHz	-13	Pass
103-105	LTE B26		30 MHz – 18 GHz	-13	Pass
106-108	LTE B41		30 MHz – 18 GHz	-13	Pass
109-111	UMTS II	Op. 4	30 MHz – 18 GHz	-13	Pass

112-114	UMTS IV		30 MHz – 18 GHz	-13	Pass
115-117	UMTS V		30 MHz – 18 GHz	-13	Pass
118-120	LTE B2		30 MHz – 18 GHz	-13	Pass
121-123	LTE B4		30 MHz – 18 GHz	-13	Pass
124-126	LTE B5		30 MHz – 18 GHz	-13	Pass
127-129	LTE B7		30 MHz – 18 GHz	-13	Pass
130-132	LTE B12		30 MHz – 18 GHz	-13	Pass
133-135	LTE B13		30 MHz – 18 GHz	-13	Pass
136-138	LTE B25		30 MHz – 18 GHz	-13	Pass
139-141	LTE B26		30 MHz – 18 GHz	-13	Pass
142-144	LTE B41		30 MHz – 18 GHz	-13	Pass

6.1.5 Measurement Plots:

UMTS II

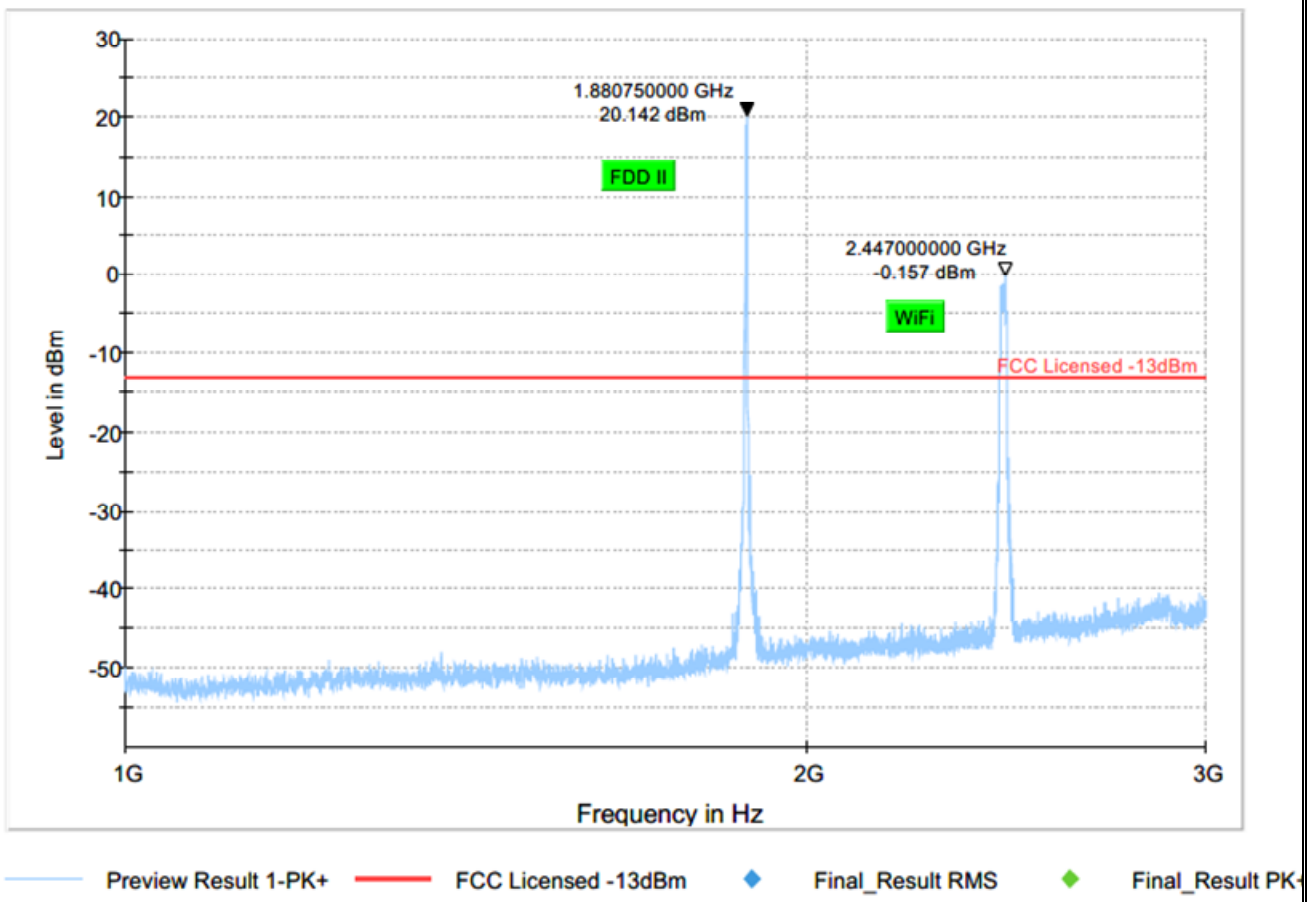
Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

Plot # Radiated Emissions: 1-3 GHz

Configuration #1

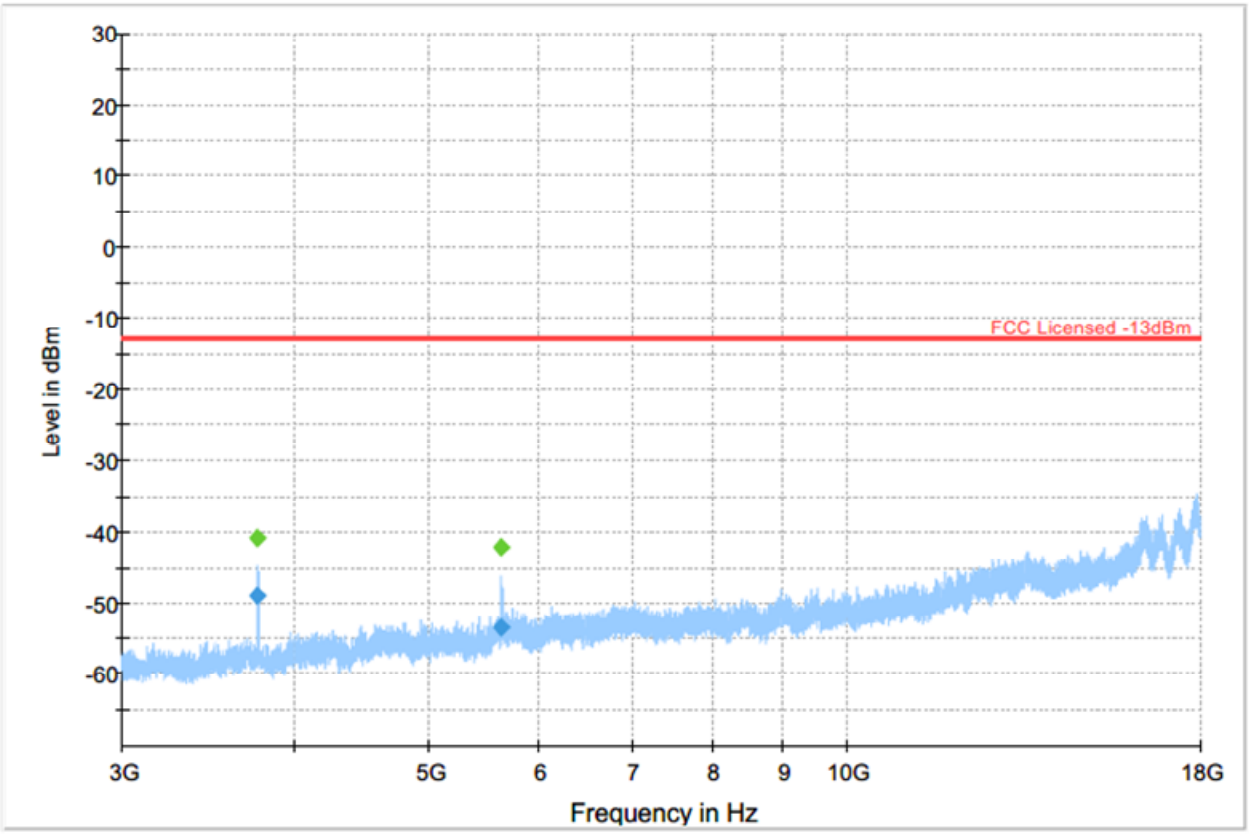


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

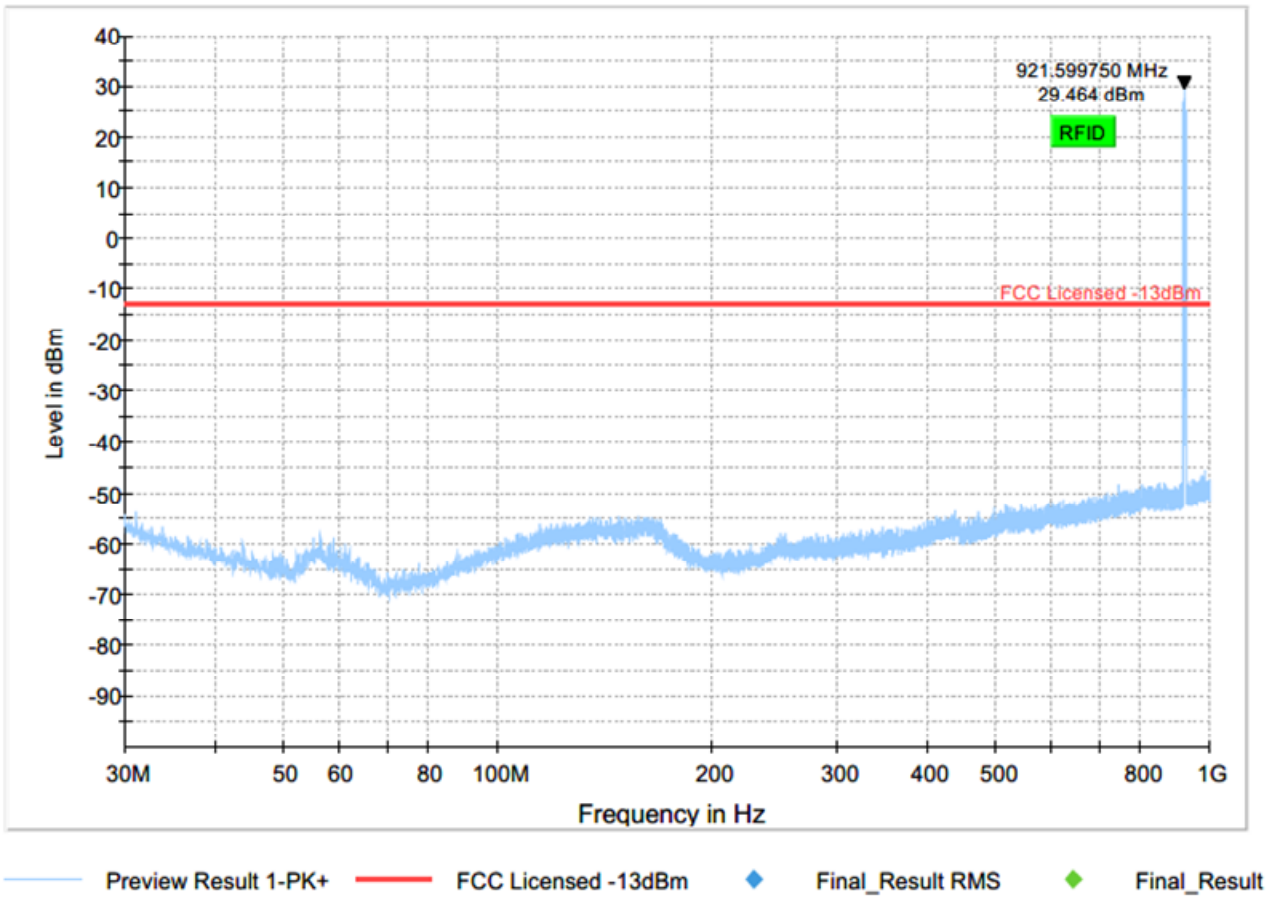
Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3761.00	---	-40.86	---	---	500.0	1000.0	201.0	H	245.0	-100.9
3761.00	-49.03	---	-13.00	36.03	500.0	1000.0	201.0	H	245.0	-100.9
5642.00	---	-42.09	---	---	500.0	1000.0	134.0	H	290.0	-96.3
5642.00	-53.43	---	-13.00	40.43	500.0	1000.0	134.0	H	290.0	-96.3



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

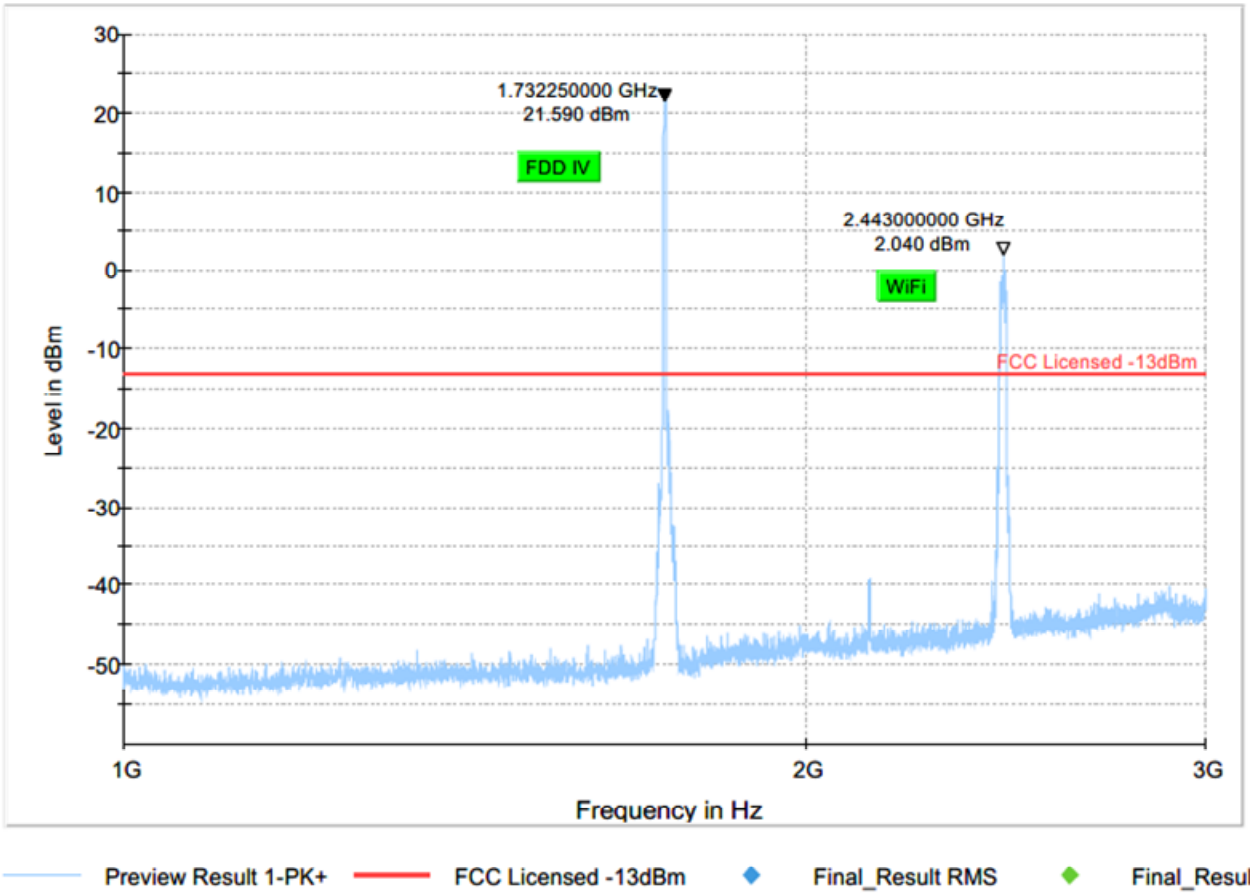
UMTS IV

Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1

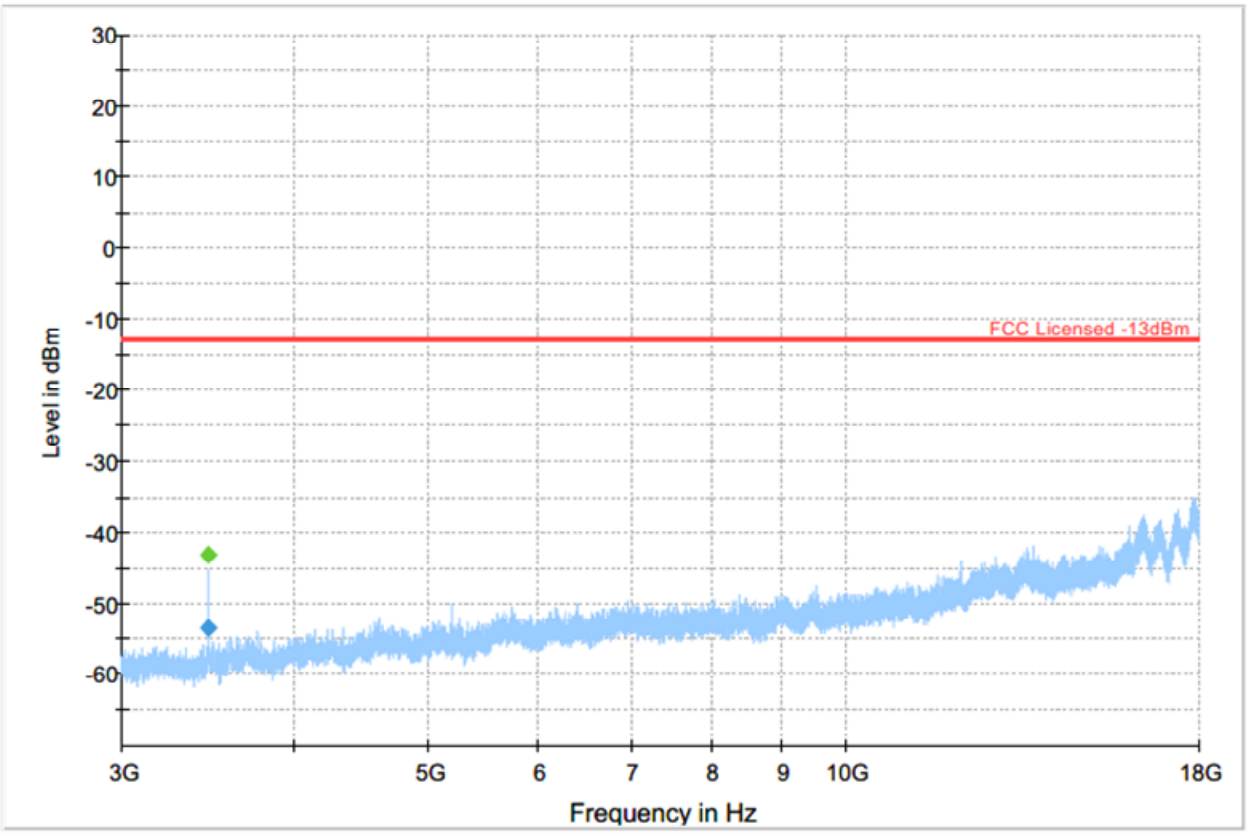


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3462.50	---	-43.24	---	---	500.0	1000.0	125.0	H	335.0	-102.2
3462.50	-53.54	---	-13.00	40.54	500.0	1000.0	125.0	H	335.0	-102.2

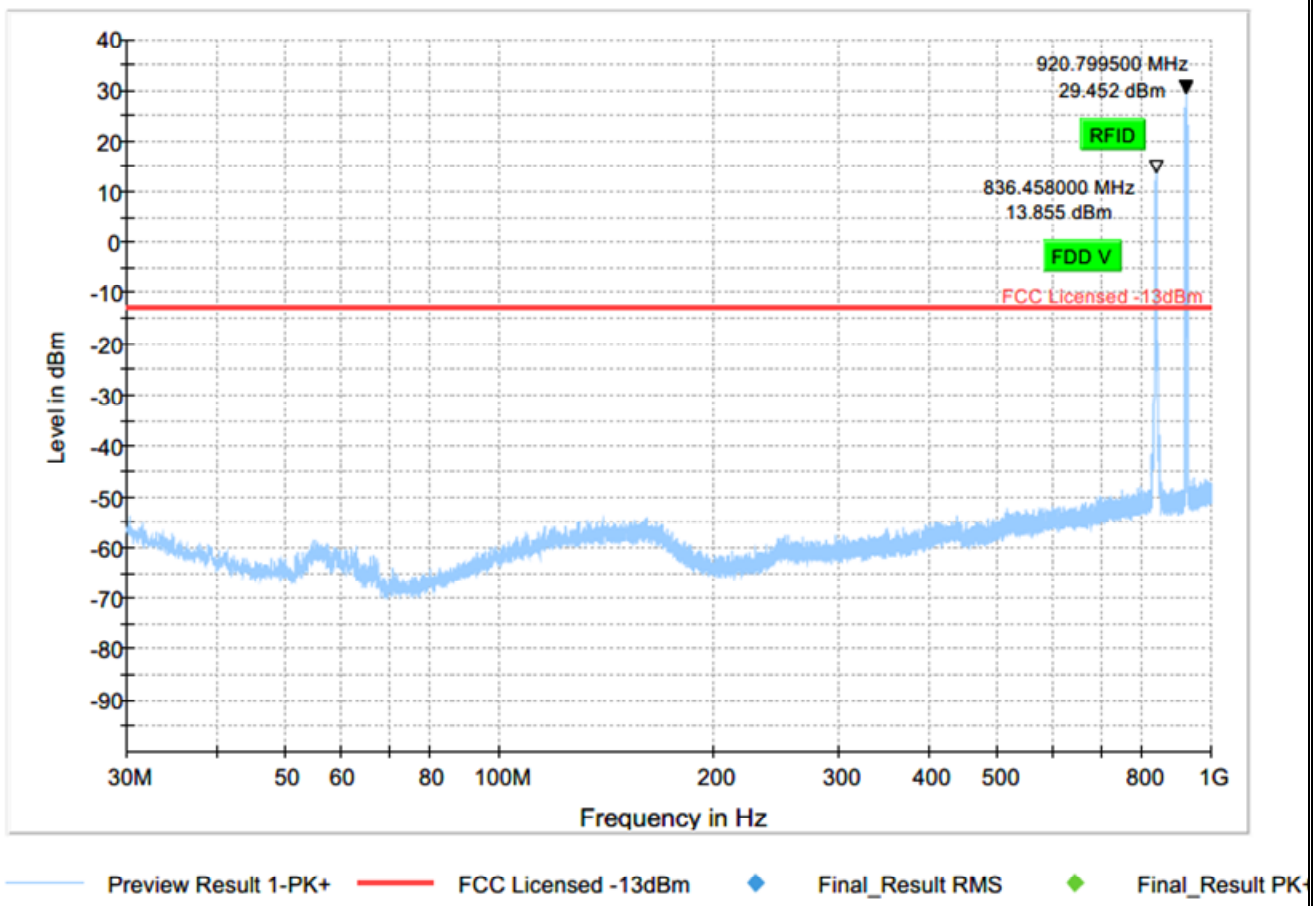


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK+

UMTS V

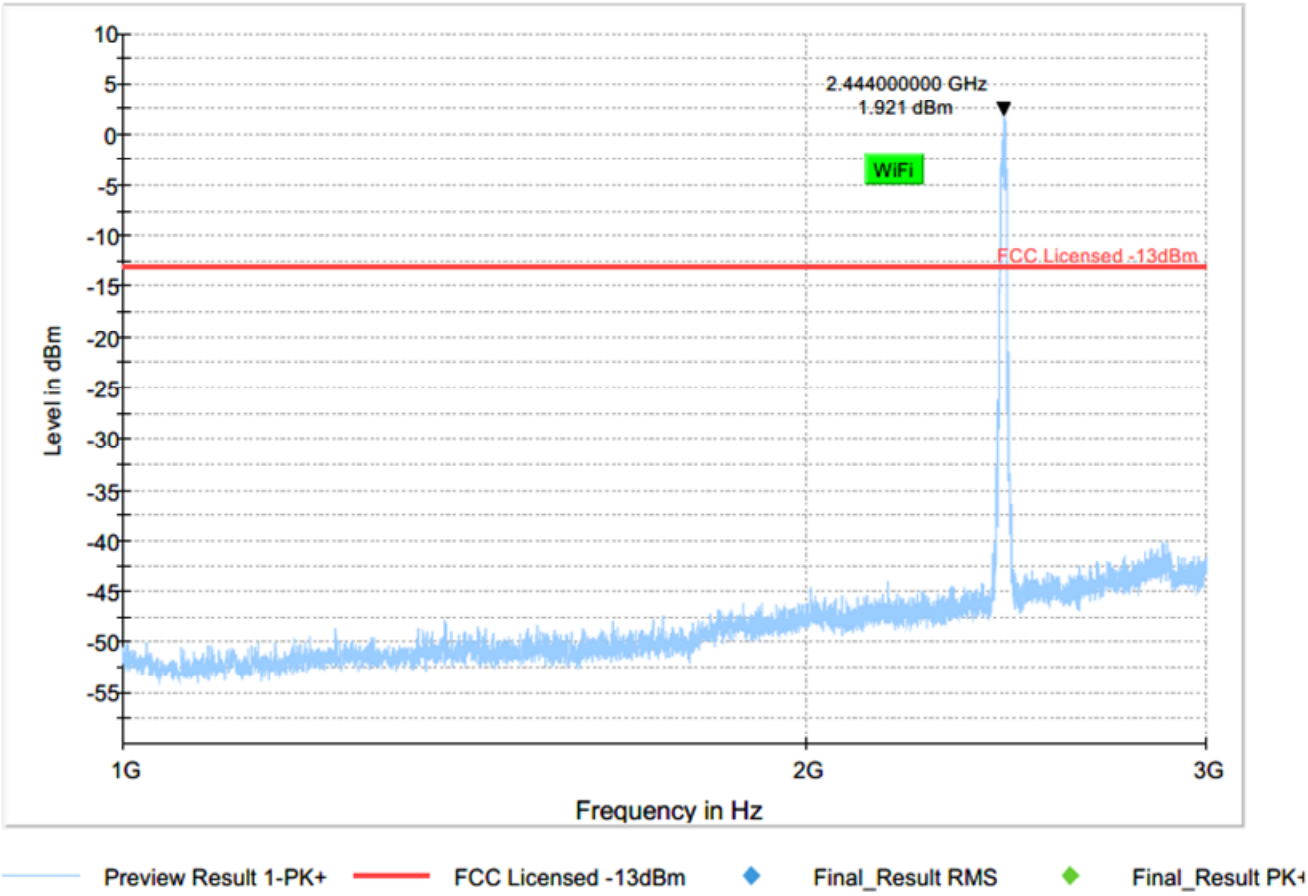
Plot # Radiated Emissions: 30 MHz – 1GHz

Configuration #1

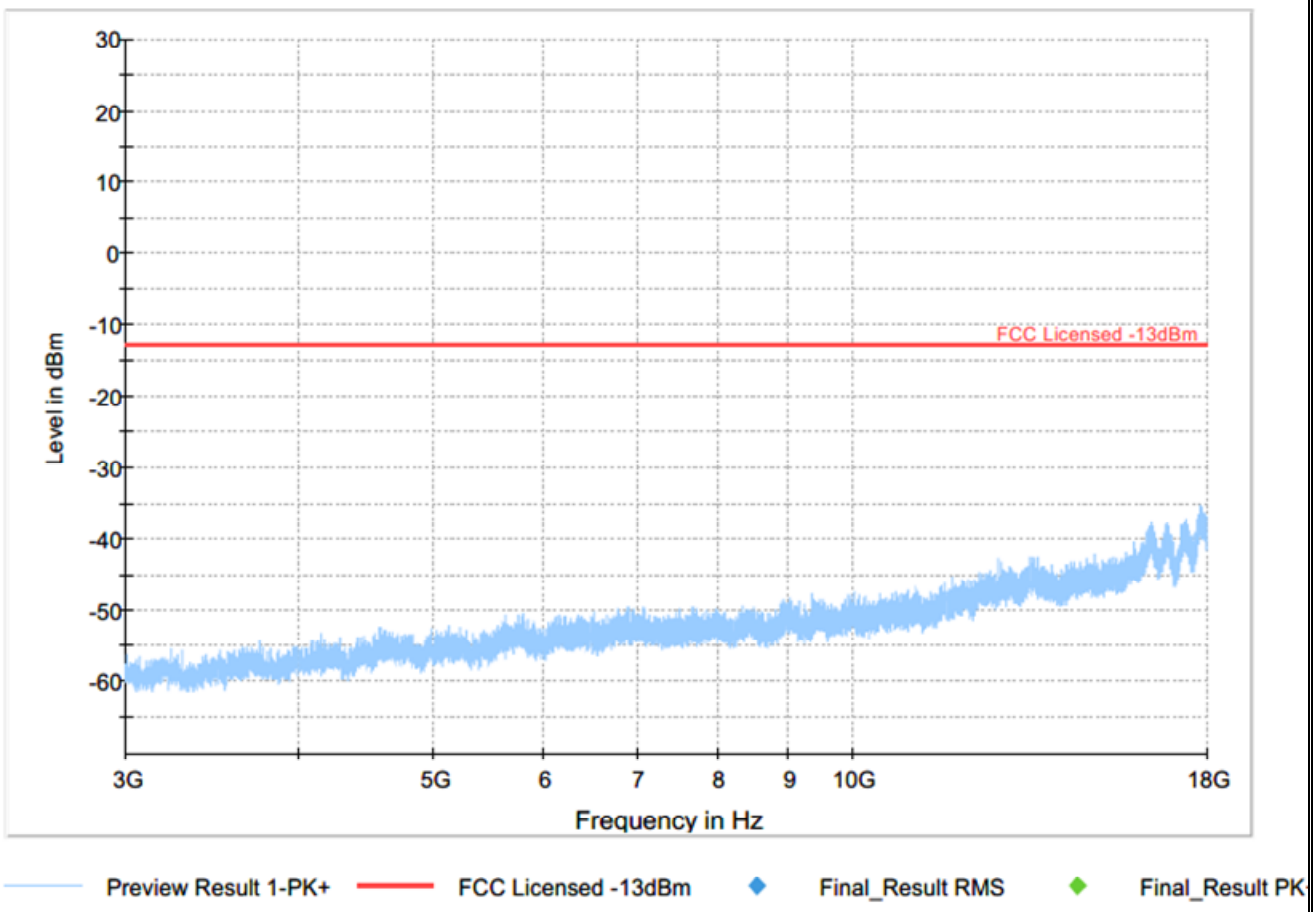


Plot # Radiated Emissions: 1-3 GHz

Configuration #1

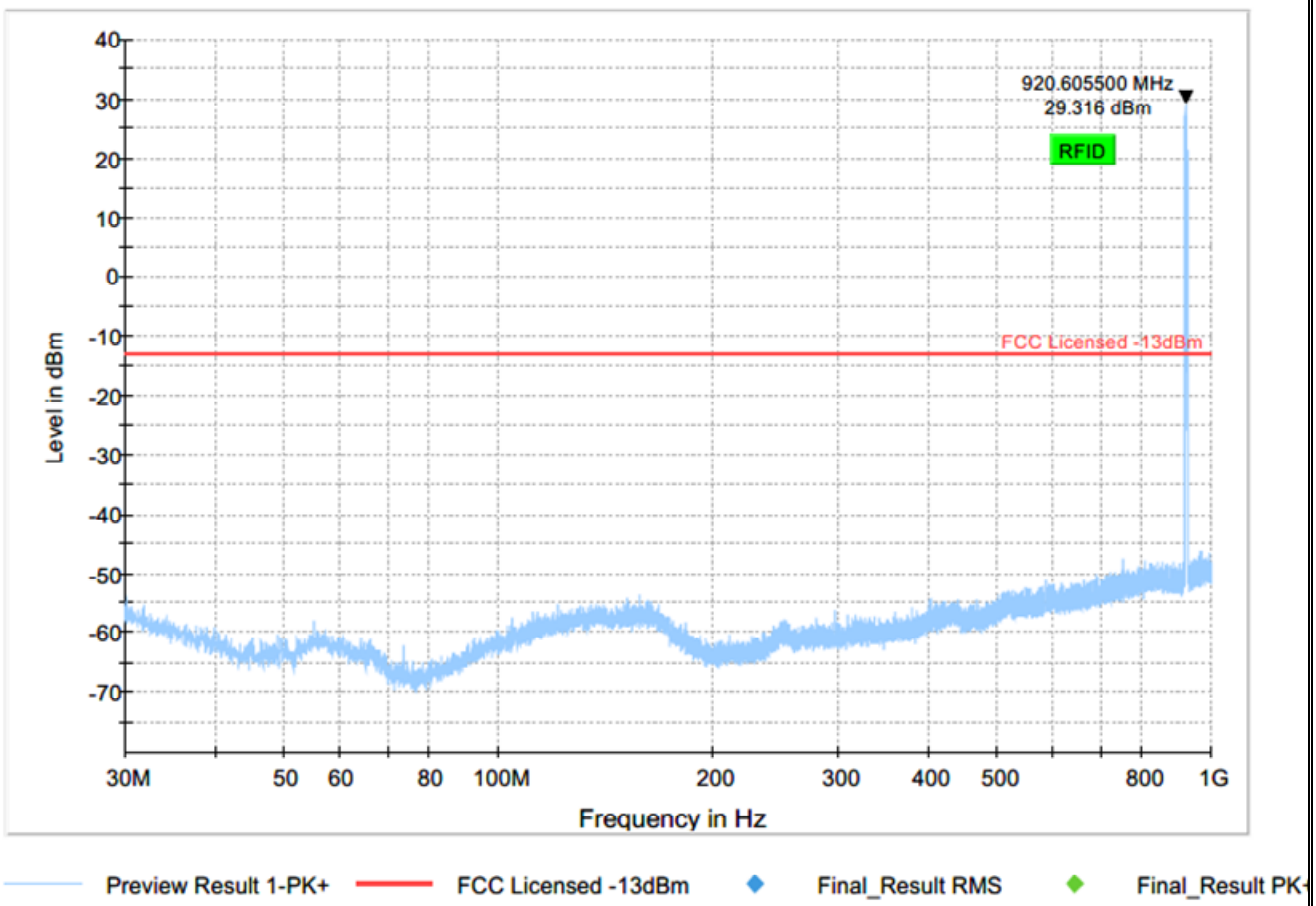


Plot # Radiated Emissions: 3-18 GHz
Configuration #1



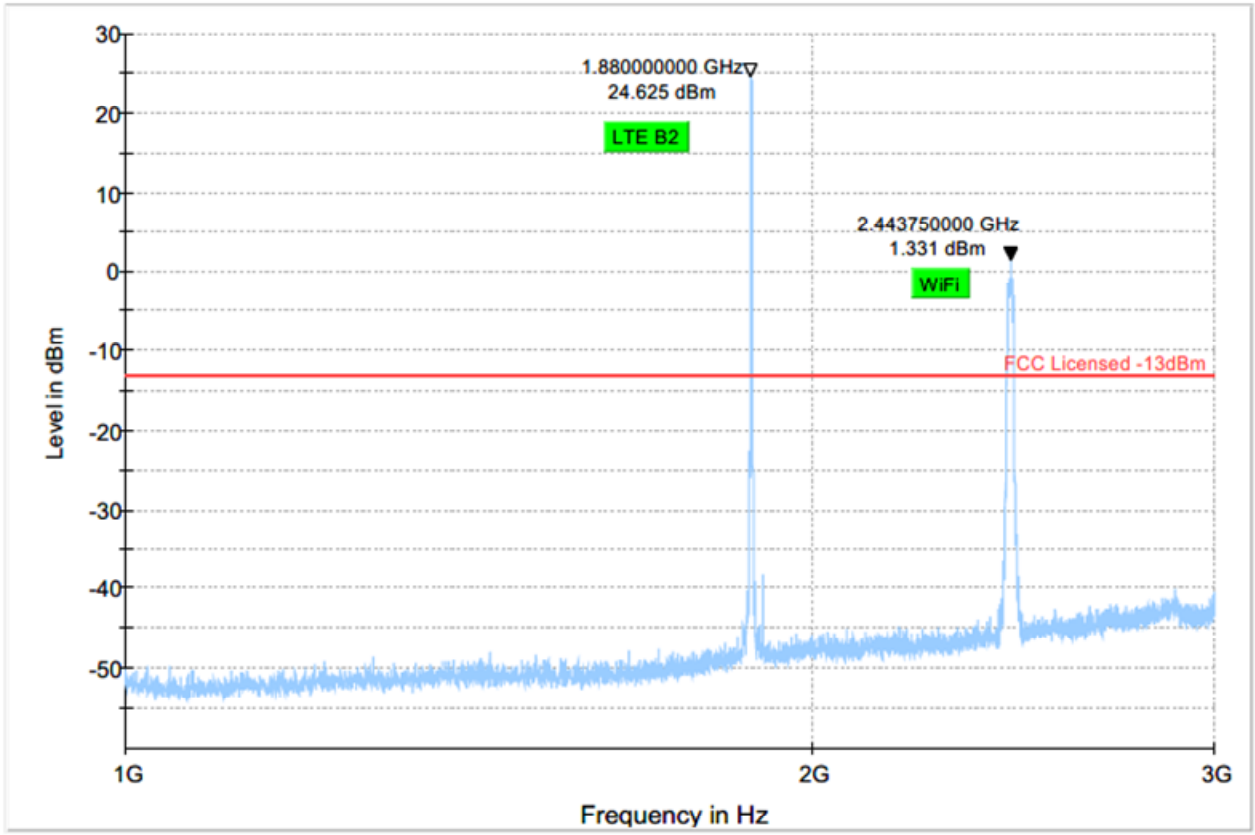
LTE Band 2

Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1



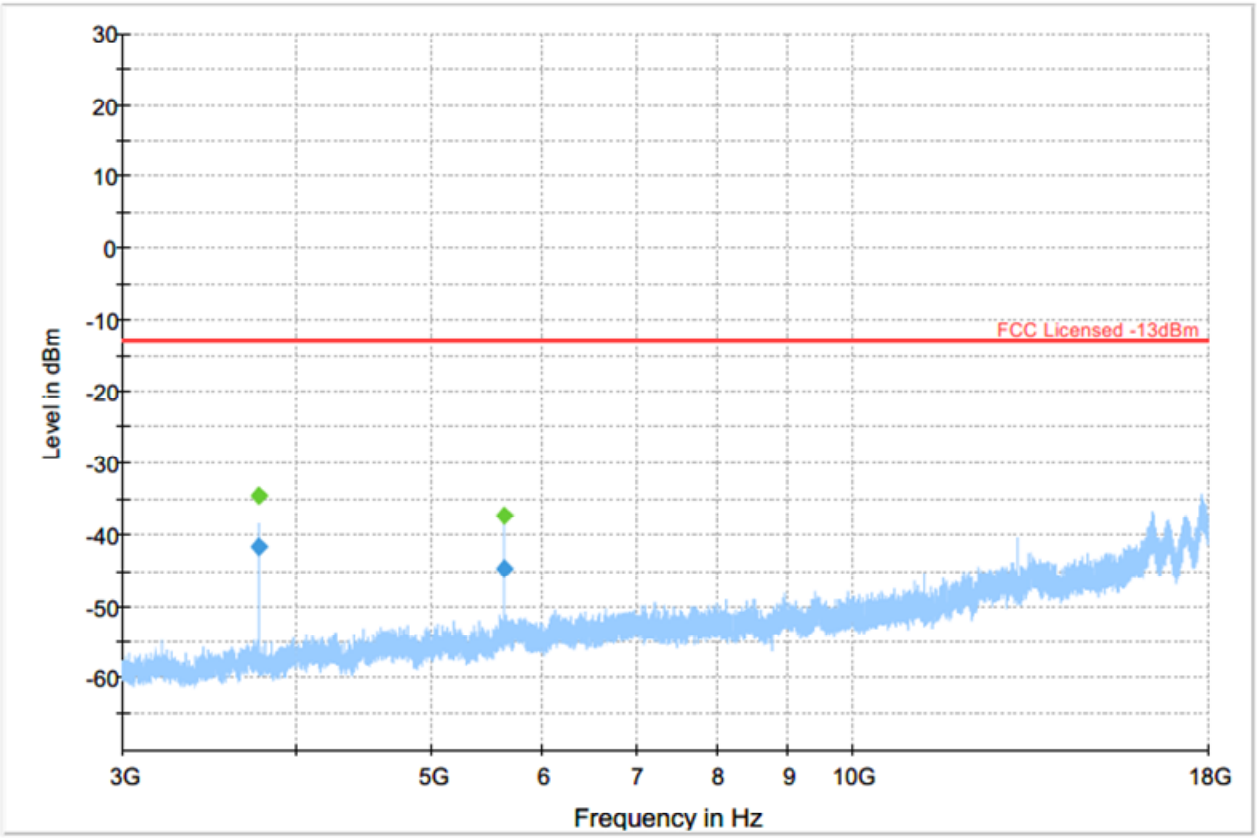
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3760.00	---	-34.57	---	---	500.0	1000.0	202.0	H	243.0	-100.9
3760.00	-41.70	---	-13.00	28.70	500.0	1000.0	202.0	H	243.0	-100.9
5640.00	---	-37.47	---	---	500.0	1000.0	135.0	H	292.0	-96.3
5640.00	-44.67	---	-13.00	31.67	500.0	1000.0	135.0	H	292.0	-96.3

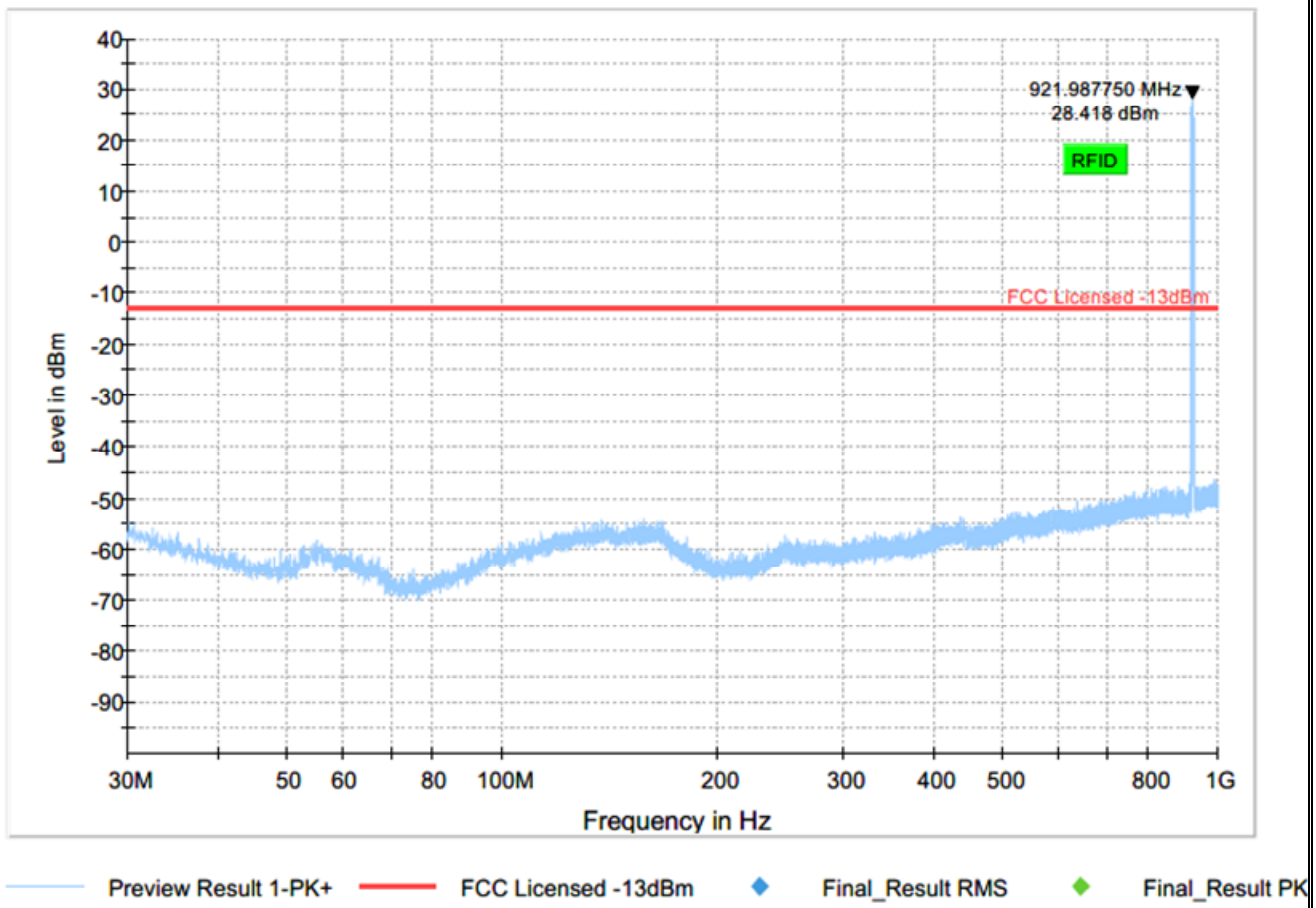


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

LTE Band 4

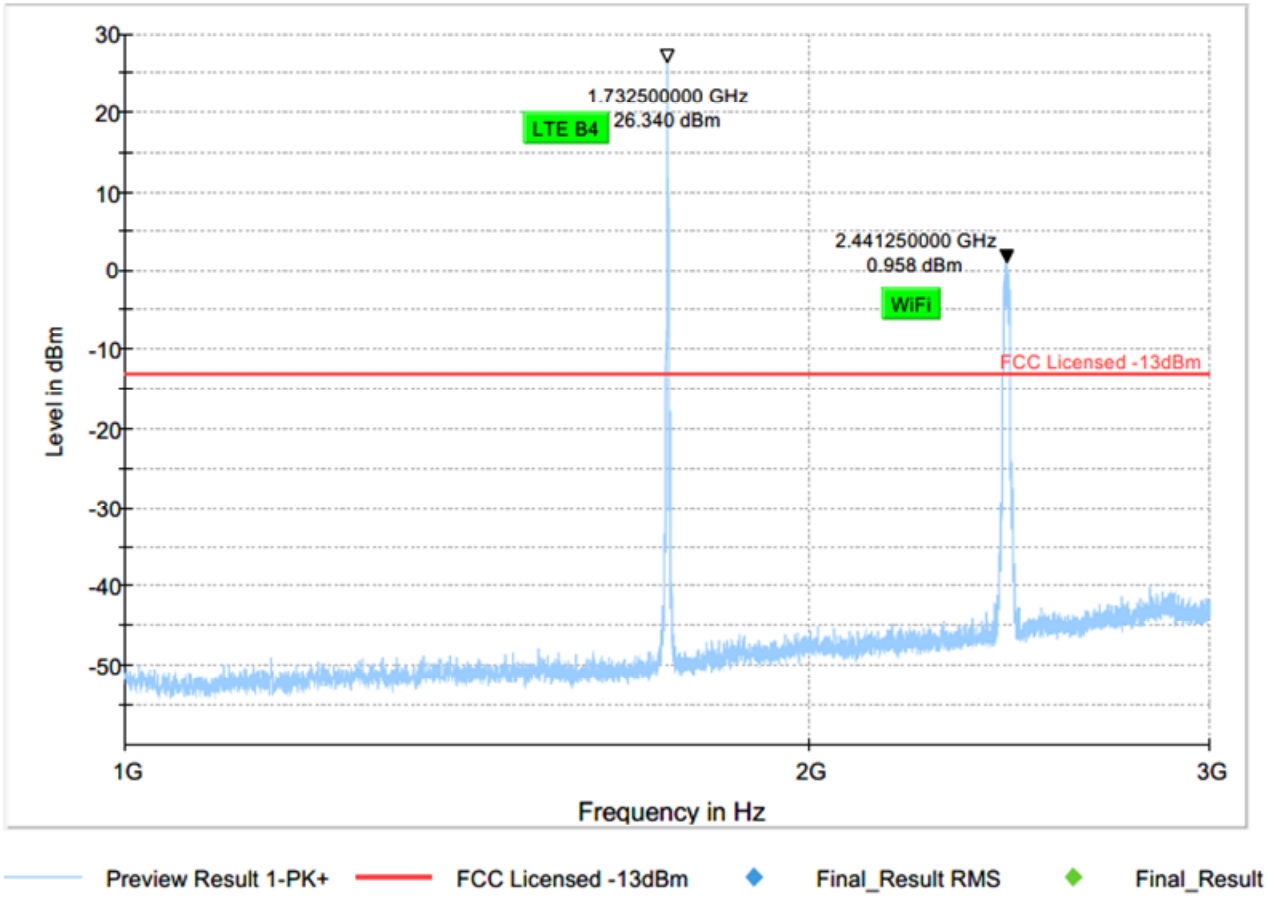
Plot # Radiated Emissions: 30 MHz – 1GHz

Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1

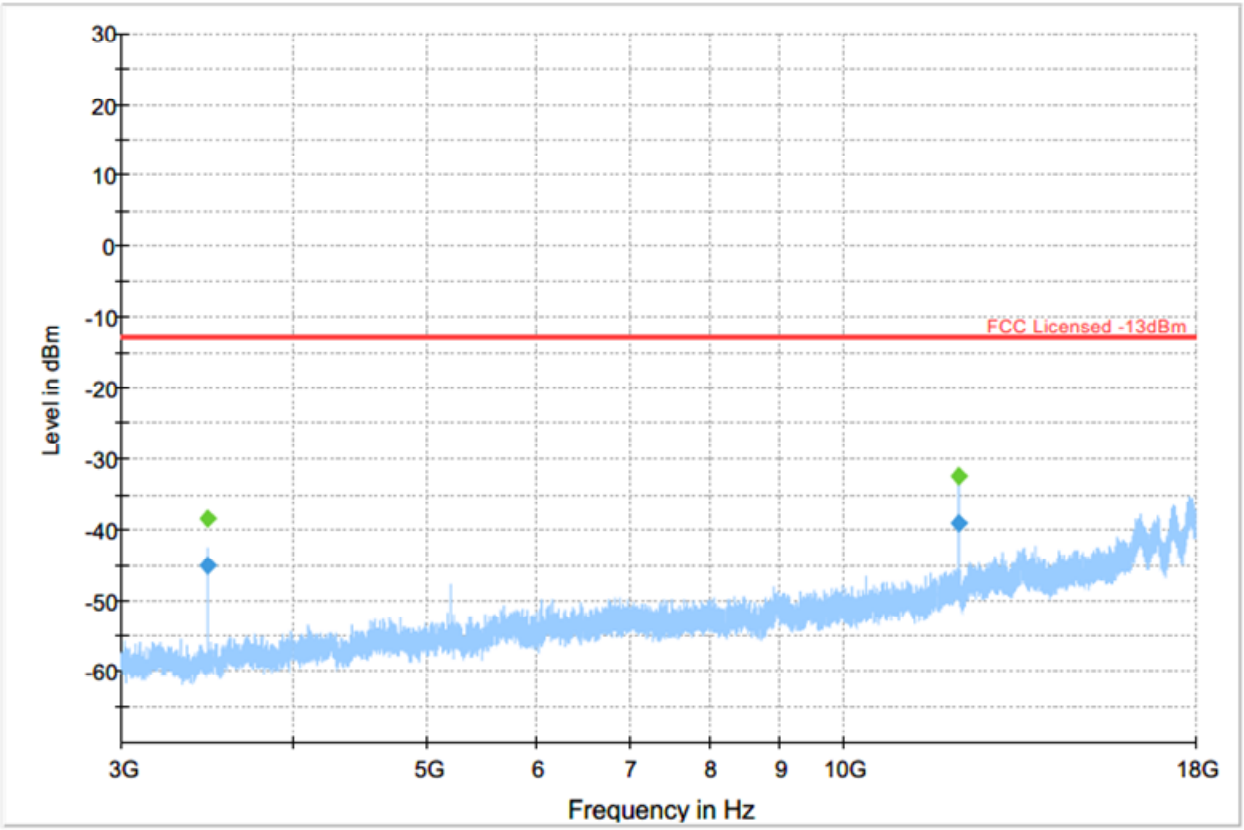


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3465.00	---	-38.35	---	---	500.0	1000.0	133.0	H	329.0	-102.2
3465.00	-45.08	---	-13.00	32.08	500.0	1000.0	133.0	H	329.0	-102.2
12128.00	---	-32.51	---	---	500.0	1000.0	142.0	H	227.0	-90.0
12128.00	-39.17	---	-13.00	26.17	500.0	1000.0	142.0	H	227.0	-90.0

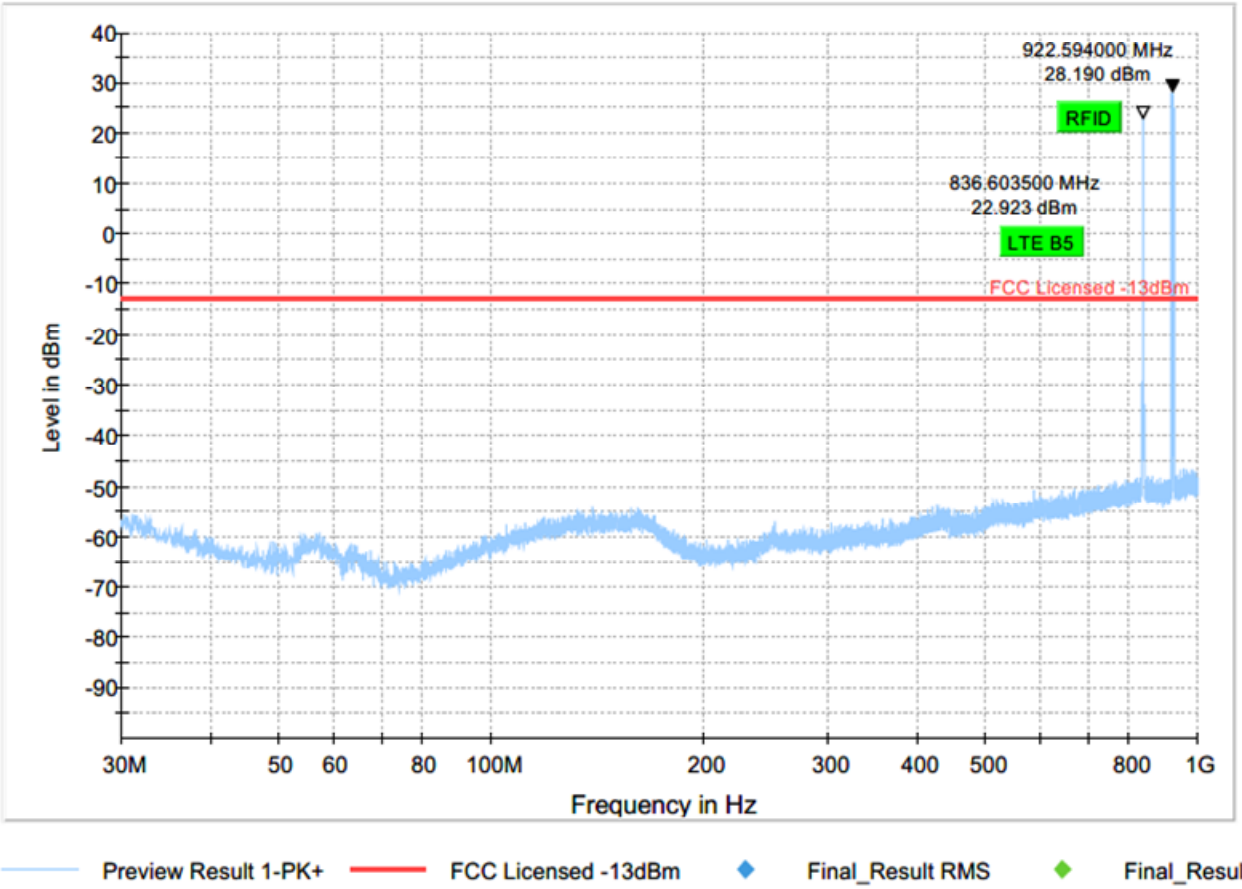


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK+

LTE Band 5

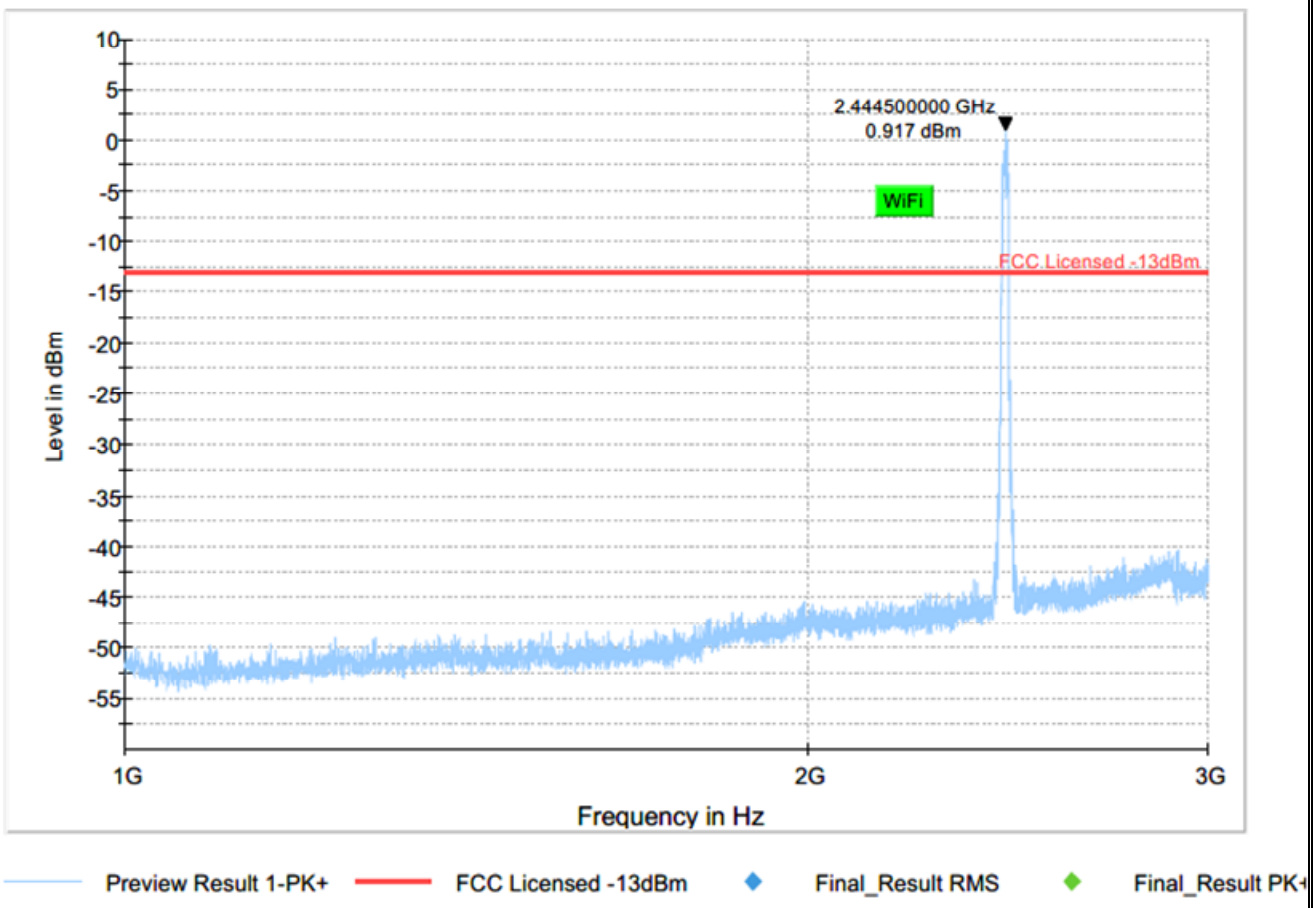
Plot # Radiated Emissions: 30 MHz – 1GHz

Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1

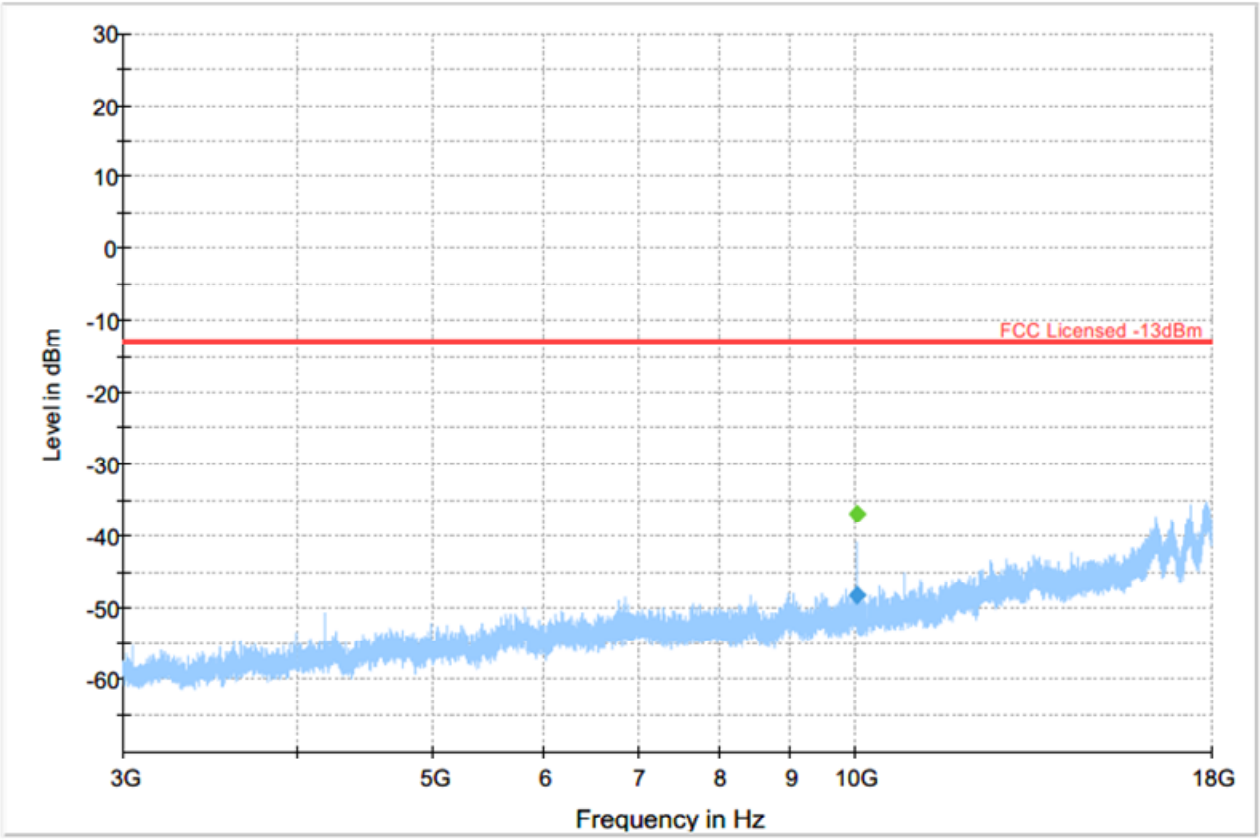


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

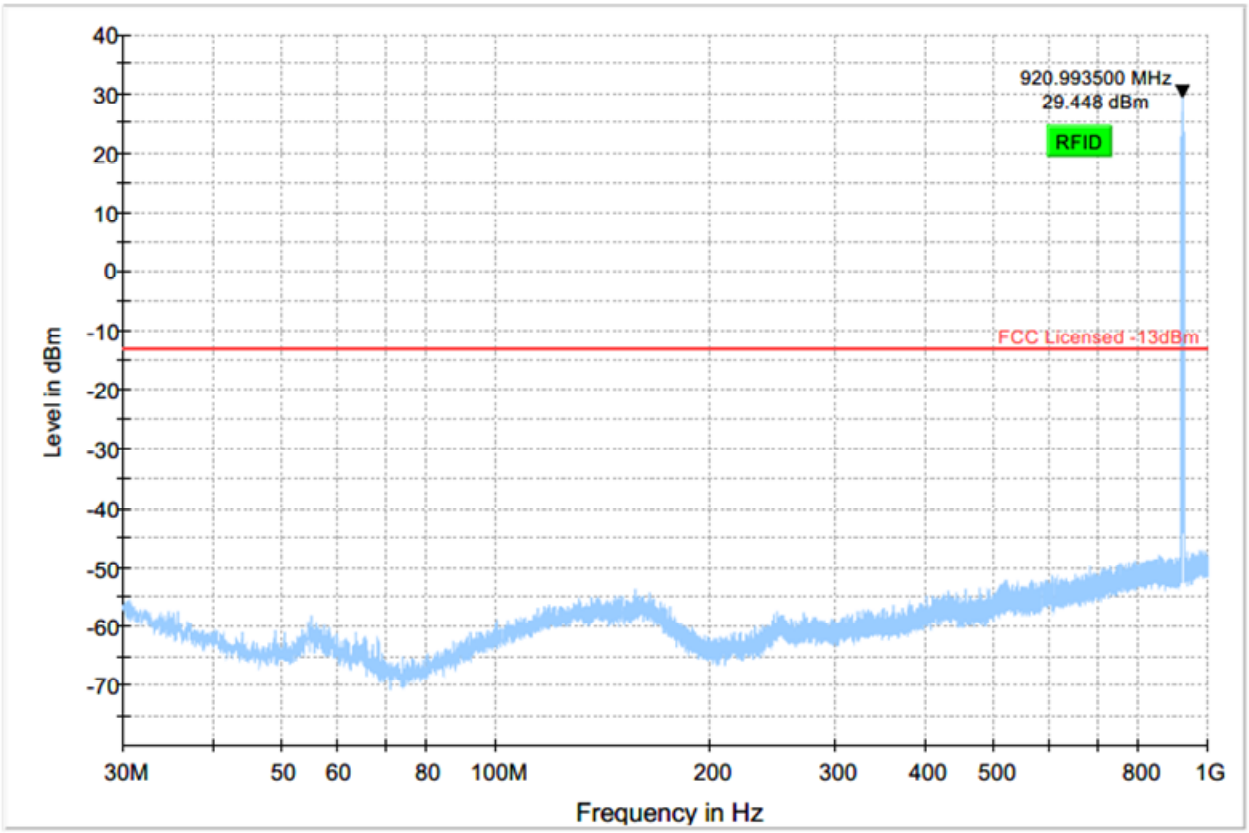
Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
10039.00	---	-36.93	---	---	500.0	1000.0	116.0	H	237.0	-92.3
10039.00	-48.41	---	-13.00	35.41	500.0	1000.0	116.0	H	237.0	-92.3



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

LTE Band 7

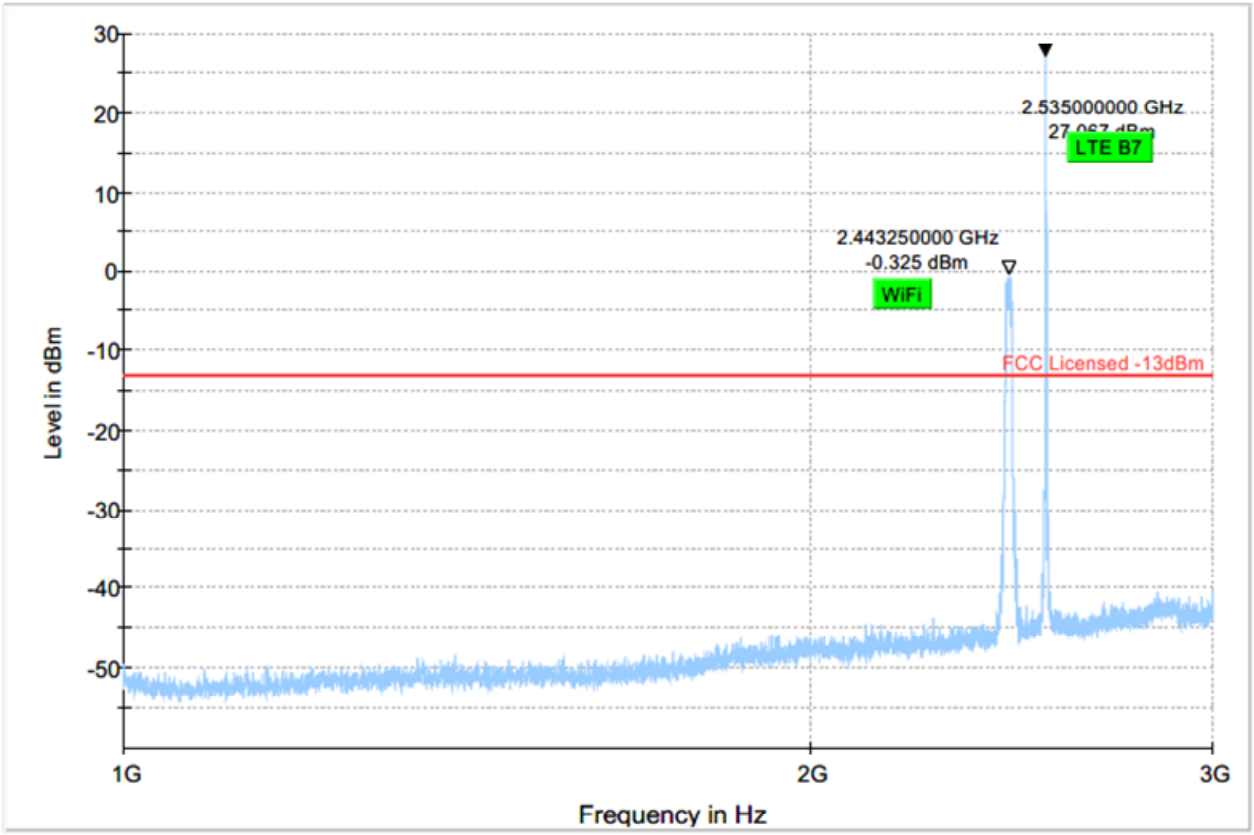
Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK+

Plot # Radiated Emissions: 1-3 GHz

Configuration #1



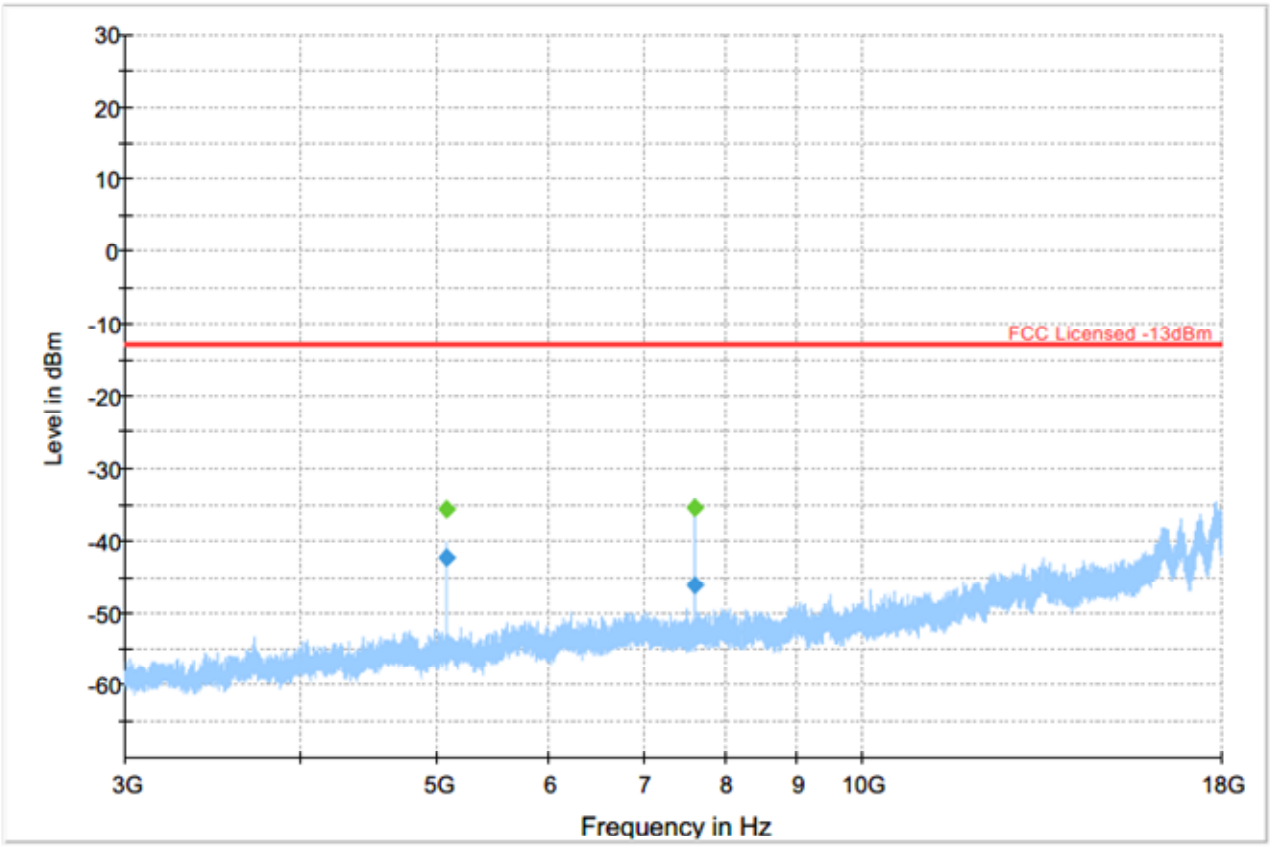
Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

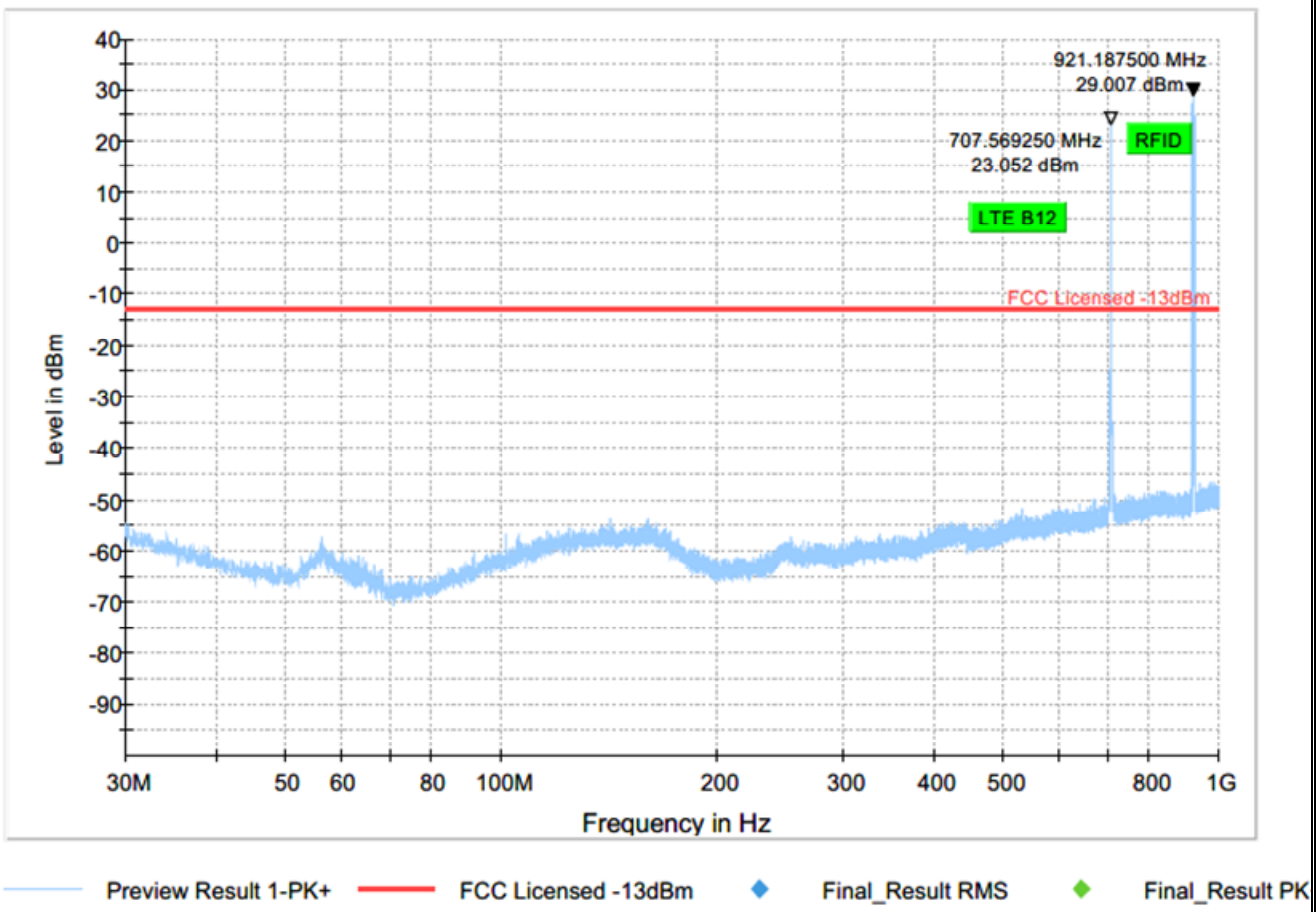
Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
5070.00	---	-35.74	---	---	500.0	1000.0	142.0	H	249.0	-97.8
5070.00	-42.24	---	-13.00	29.24	500.0	1000.0	142.0	H	249.0	-97.8
7605.00	---	-35.56	---	---	500.0	1000.0	142.0	V	301.0	-95.1
7605.00	-46.22	---	-13.00	33.22	500.0	1000.0	142.0	V	301.0	-95.1



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result Pl

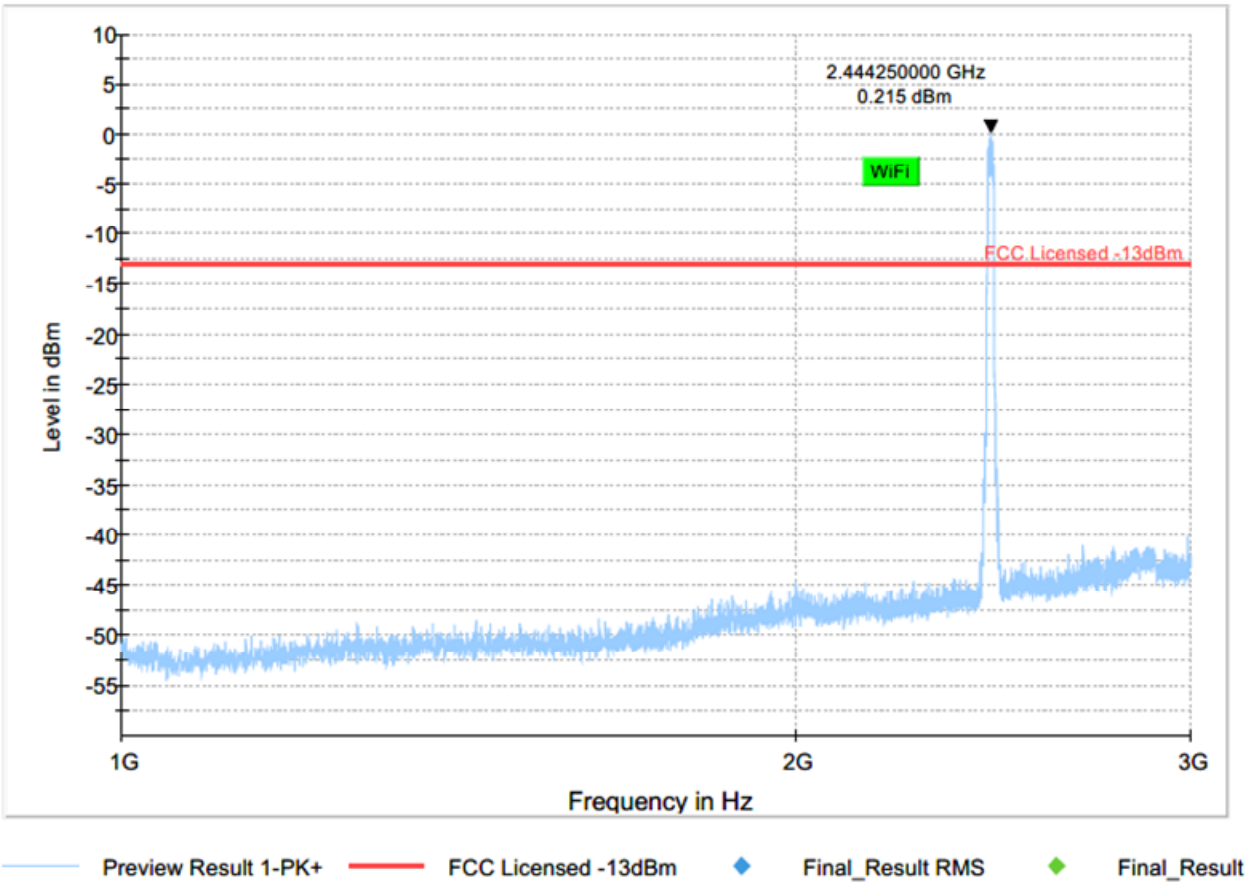
LTE Band 12

Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1

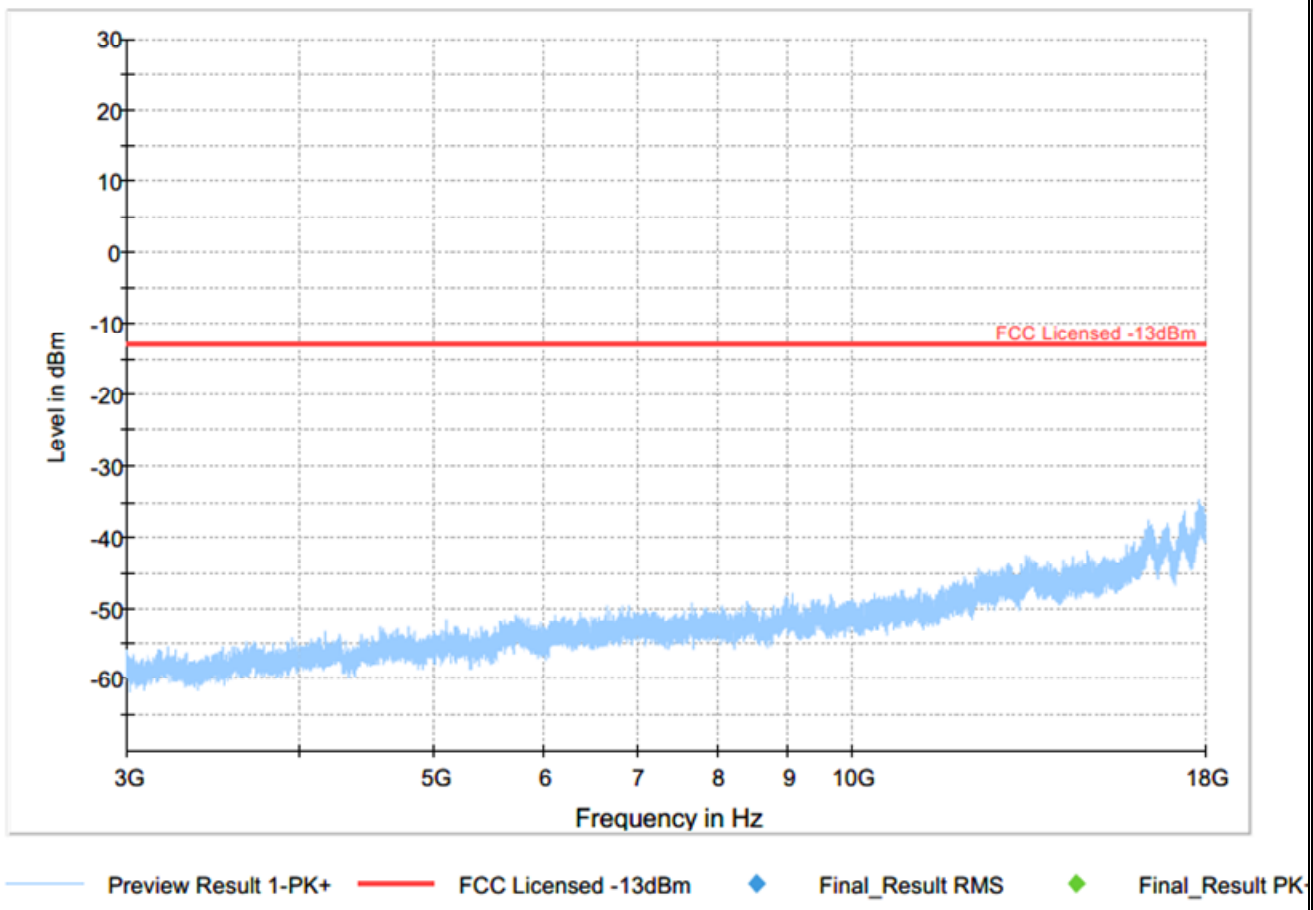


Plot # Radiated Emissions: 1-3 GHz

Configuration #1

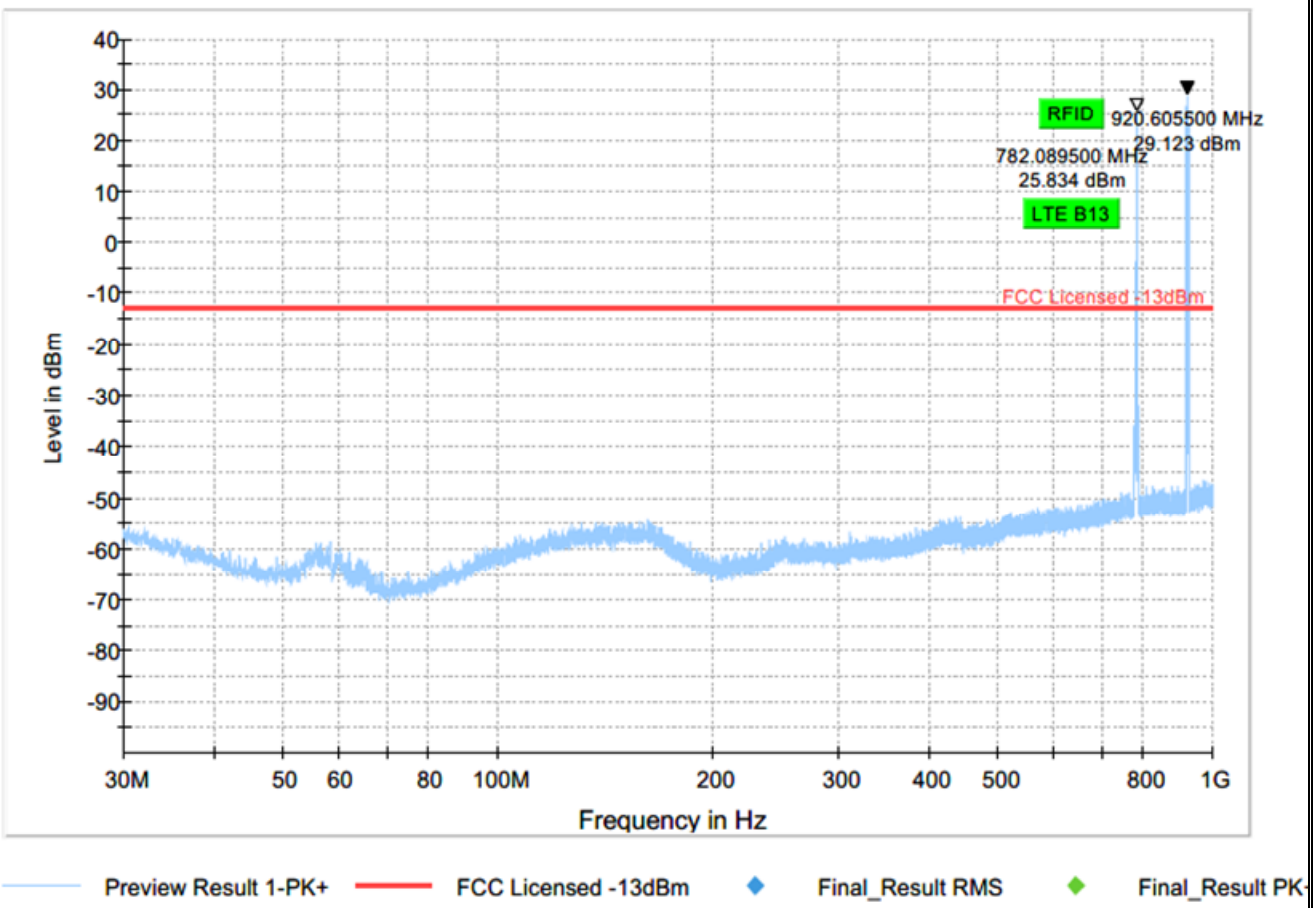


Plot # Radiated Emissions: 3-18 GHz
Configuration #1



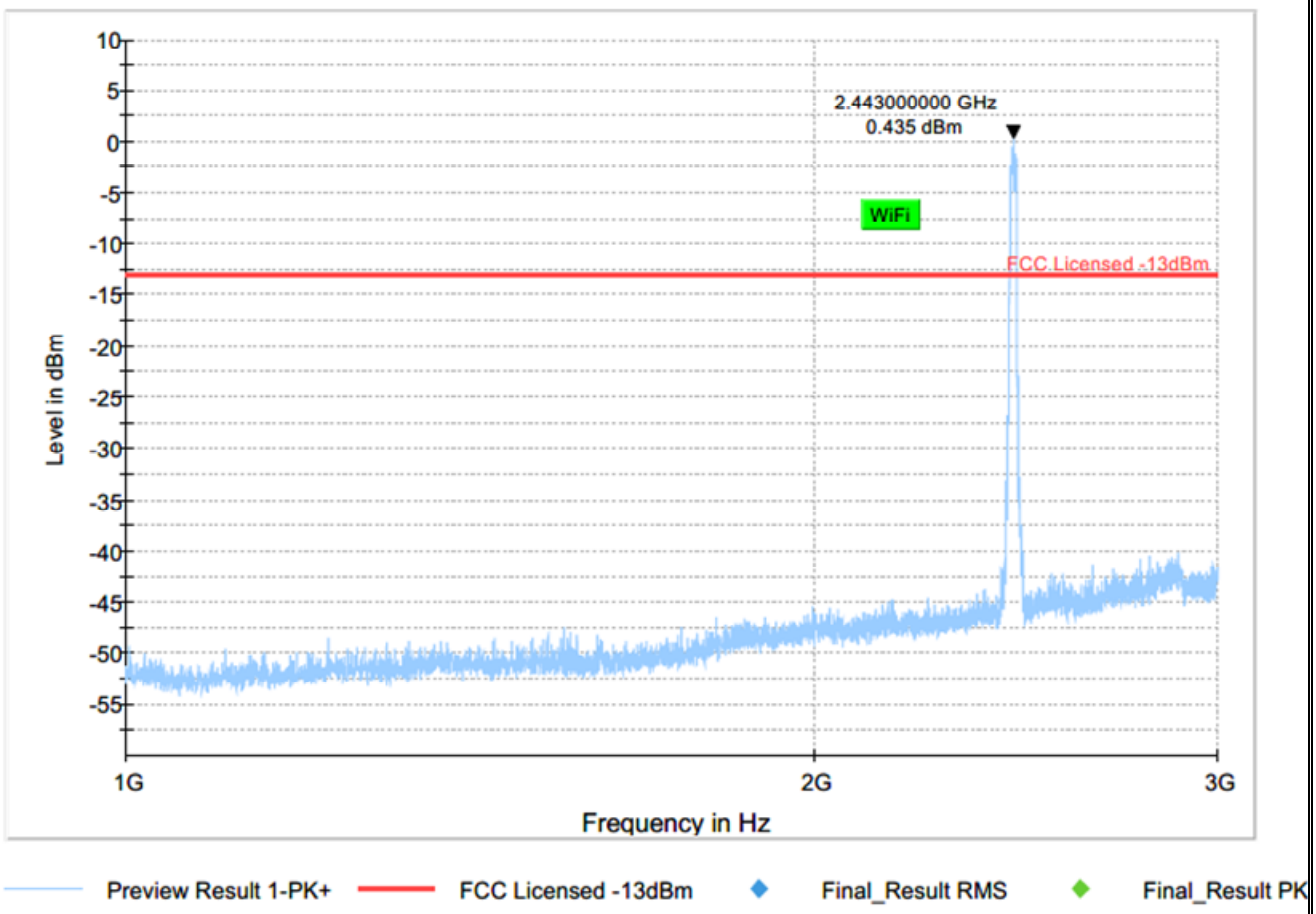
LTE Band 13

Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1

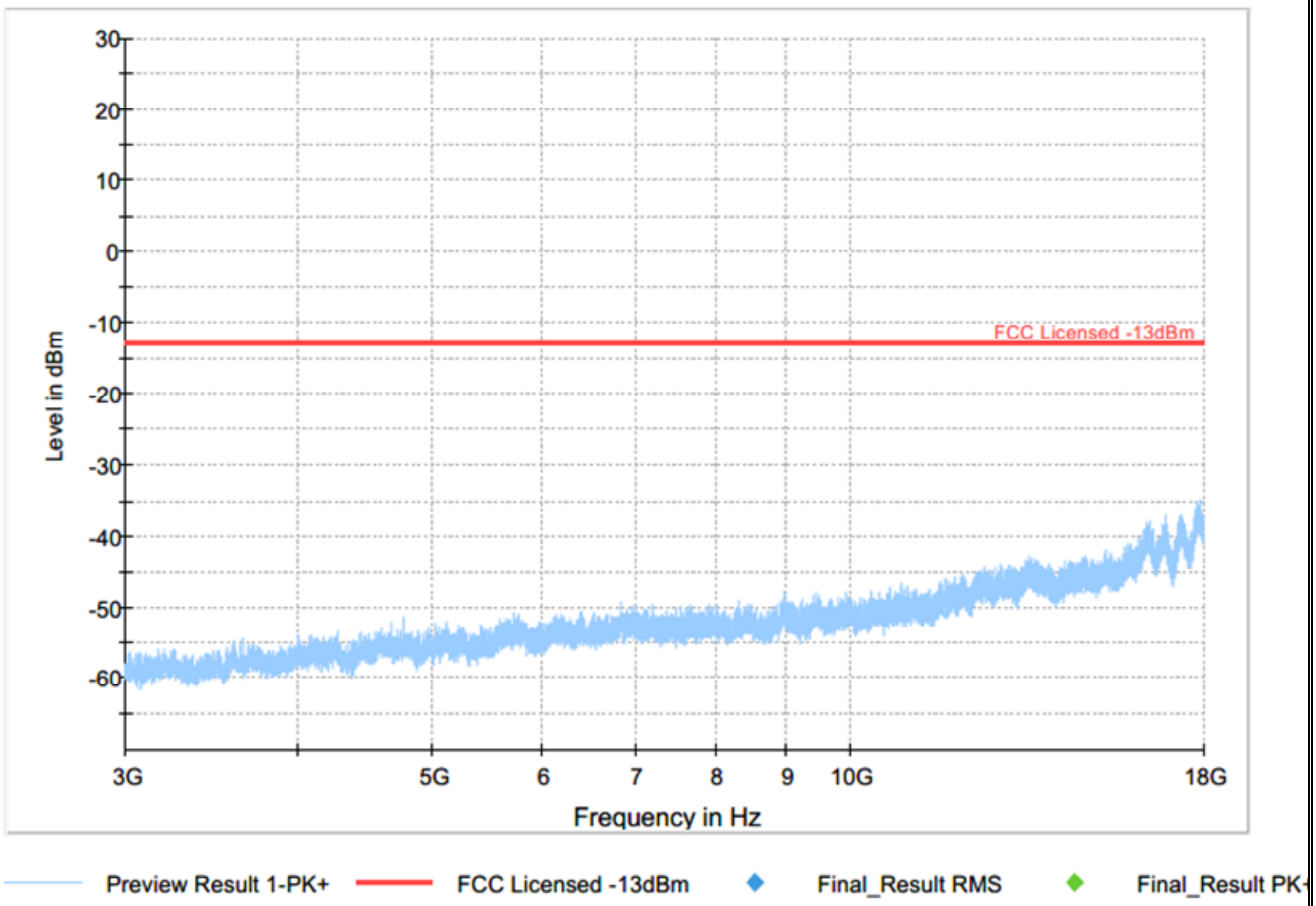


Plot # Radiated Emissions: 1-3 GHz

Configuration #1

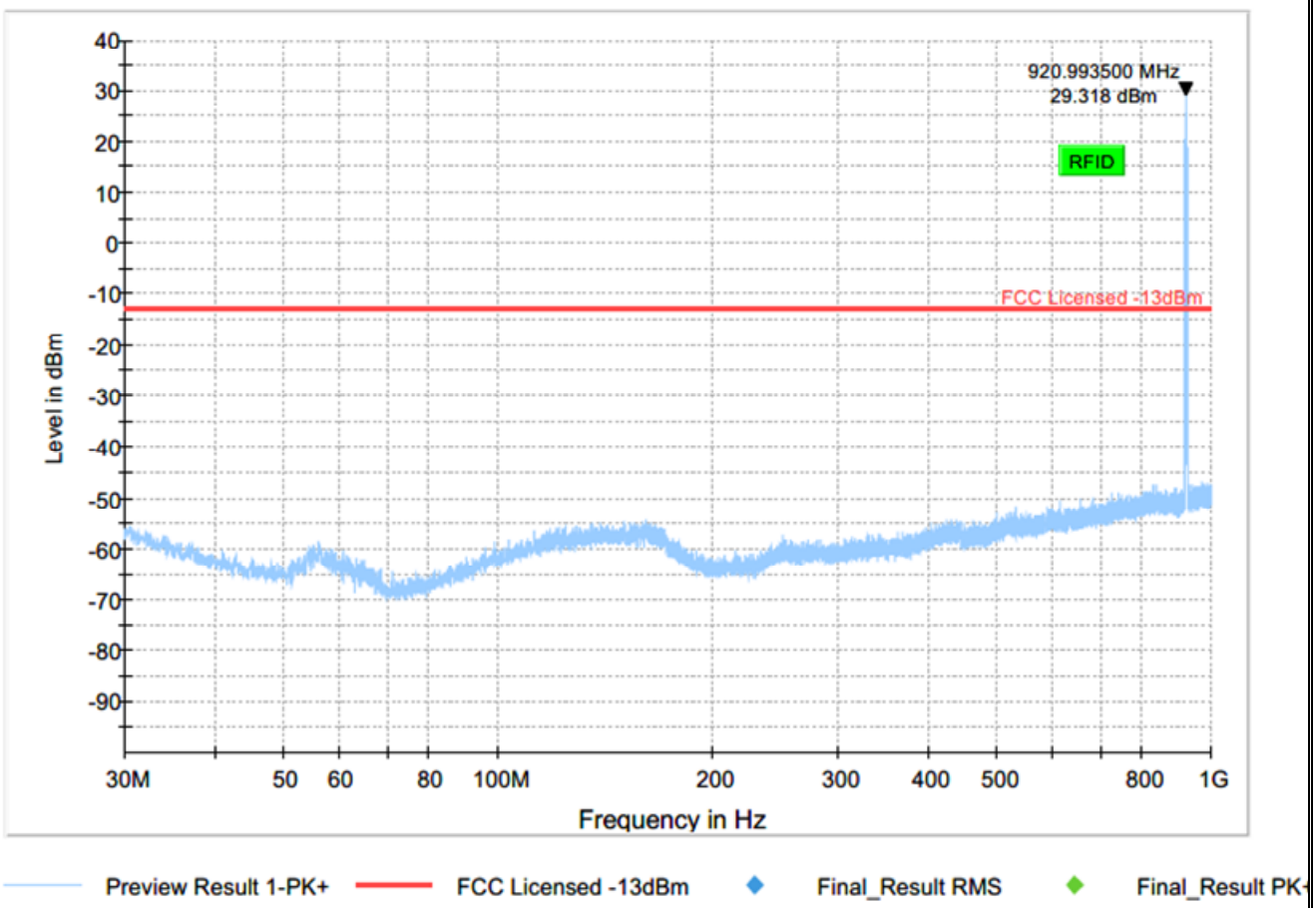


Plot # Radiated Emissions: 3-18 GHz
Configuration #1



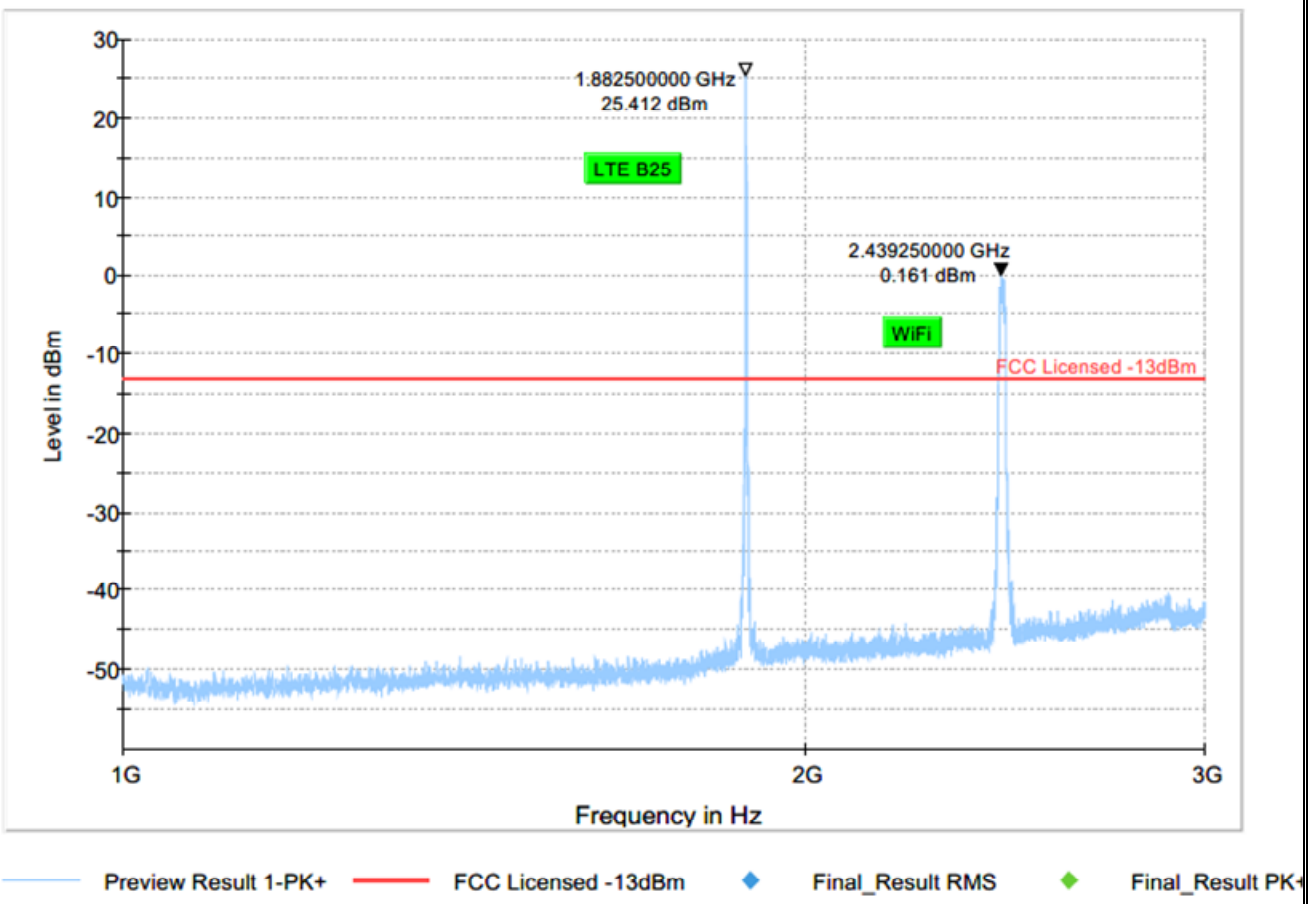
LTE Band 25

Plot # Radiated Emissions: 30 MHz – 1GHz
Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1

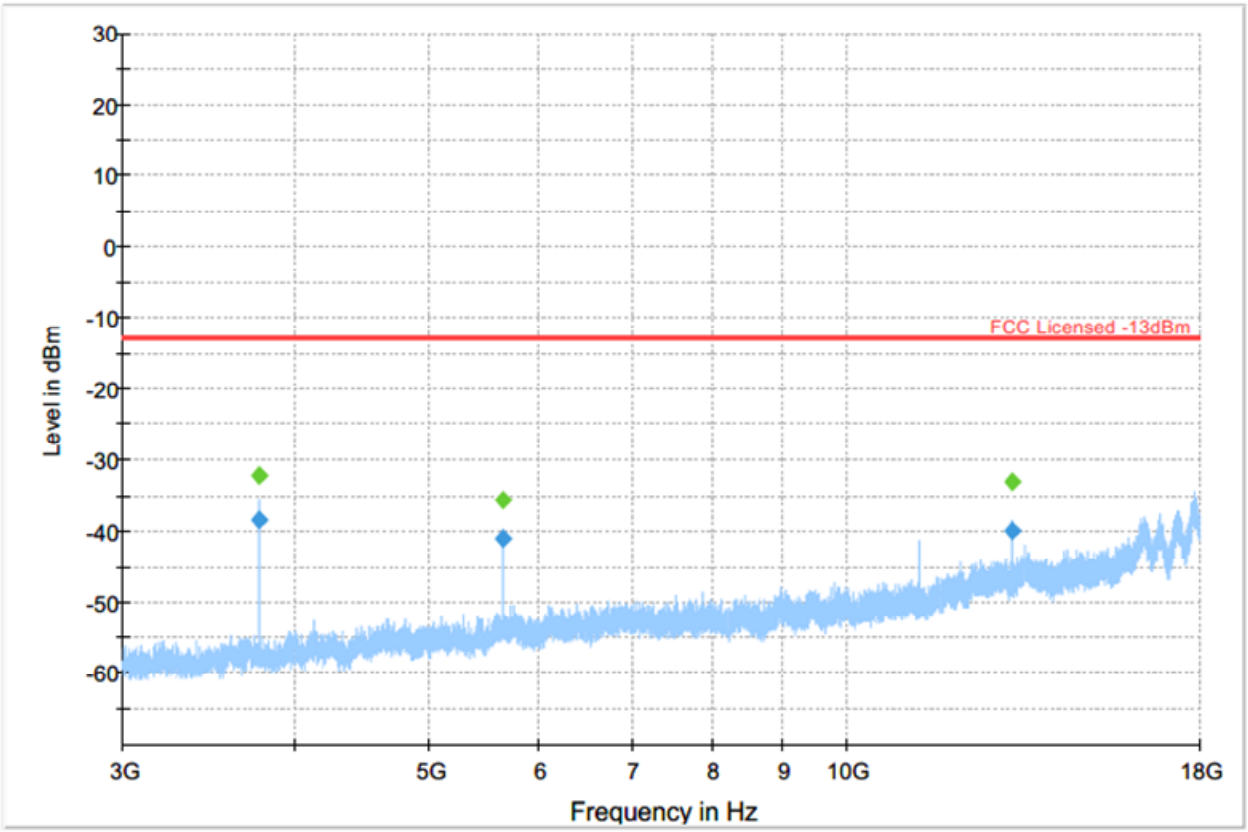


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3765.00	---	-32.21	---	---	500.0	1000.0	201.0	H	249.0	-100.9
3765.00	-38.39	---	-13.00	25.39	500.0	1000.0	201.0	H	249.0	-100.9
5647.75	---	-35.70	---	---	500.0	1000.0	159.0	H	219.0	-96.3
5647.75	-40.98	---	-13.00	27.98	500.0	1000.0	159.0	H	219.0	-96.3
13178.00	---	-32.98	---	---	500.0	1000.0	176.0	H	231.0	-86.7
13178.00	-39.91	---	-13.00	26.91	500.0	1000.0	176.0	H	231.0	-86.7

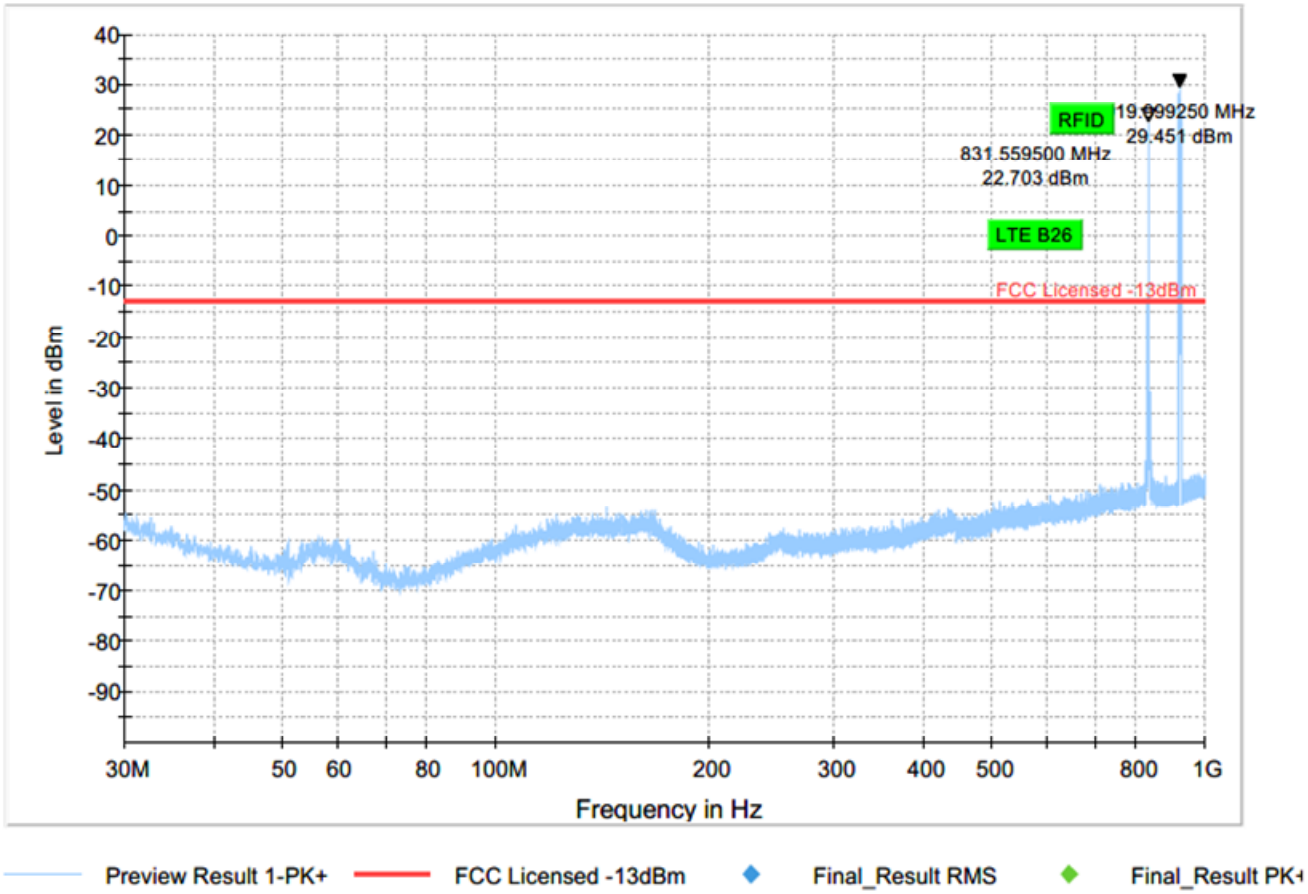


Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK

LTE Band 26

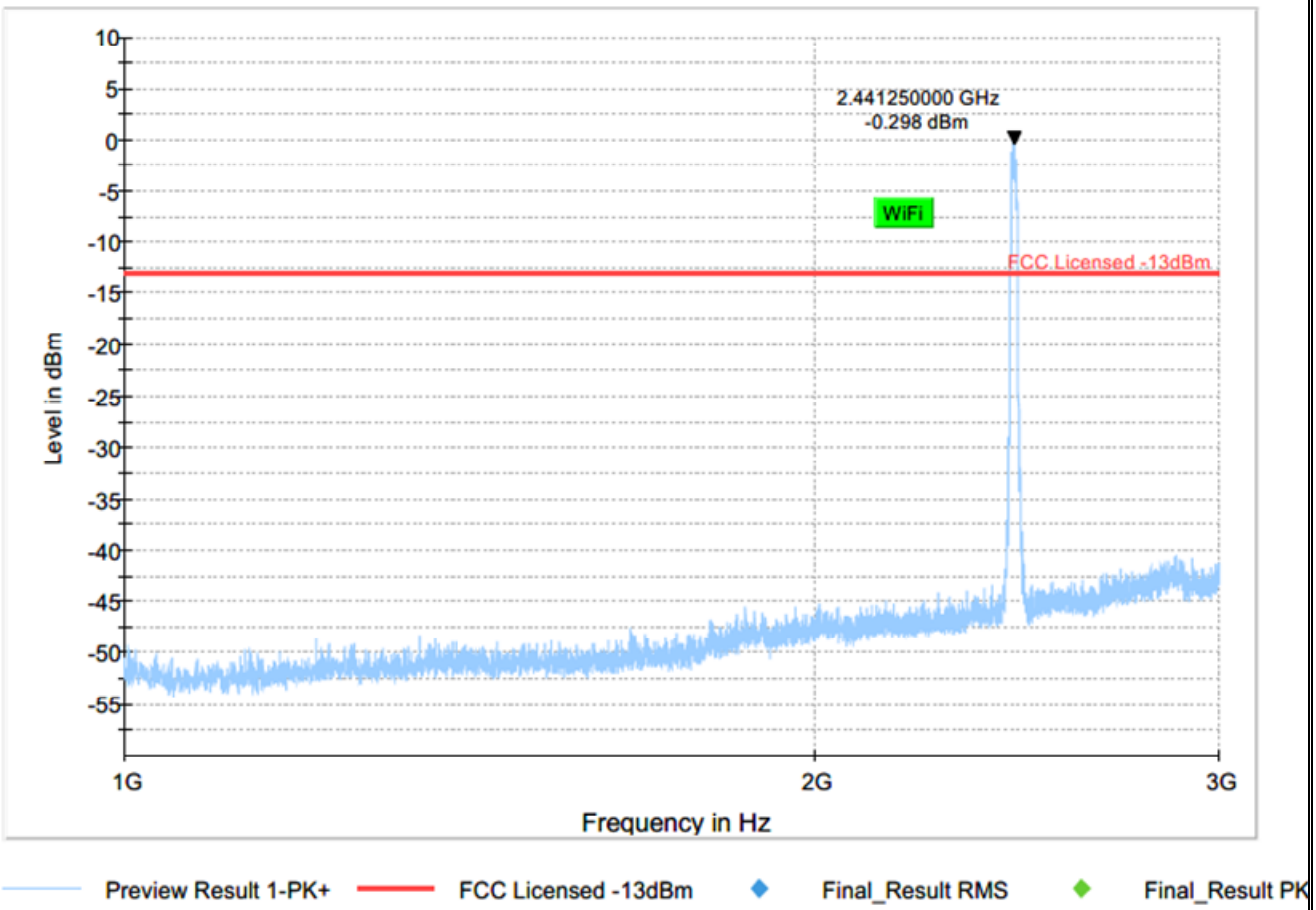
Plot # Radiated Emissions: 30 MHz – 1GHz

Configuration #1



Plot # Radiated Emissions: 1-3 GHz

Configuration #1

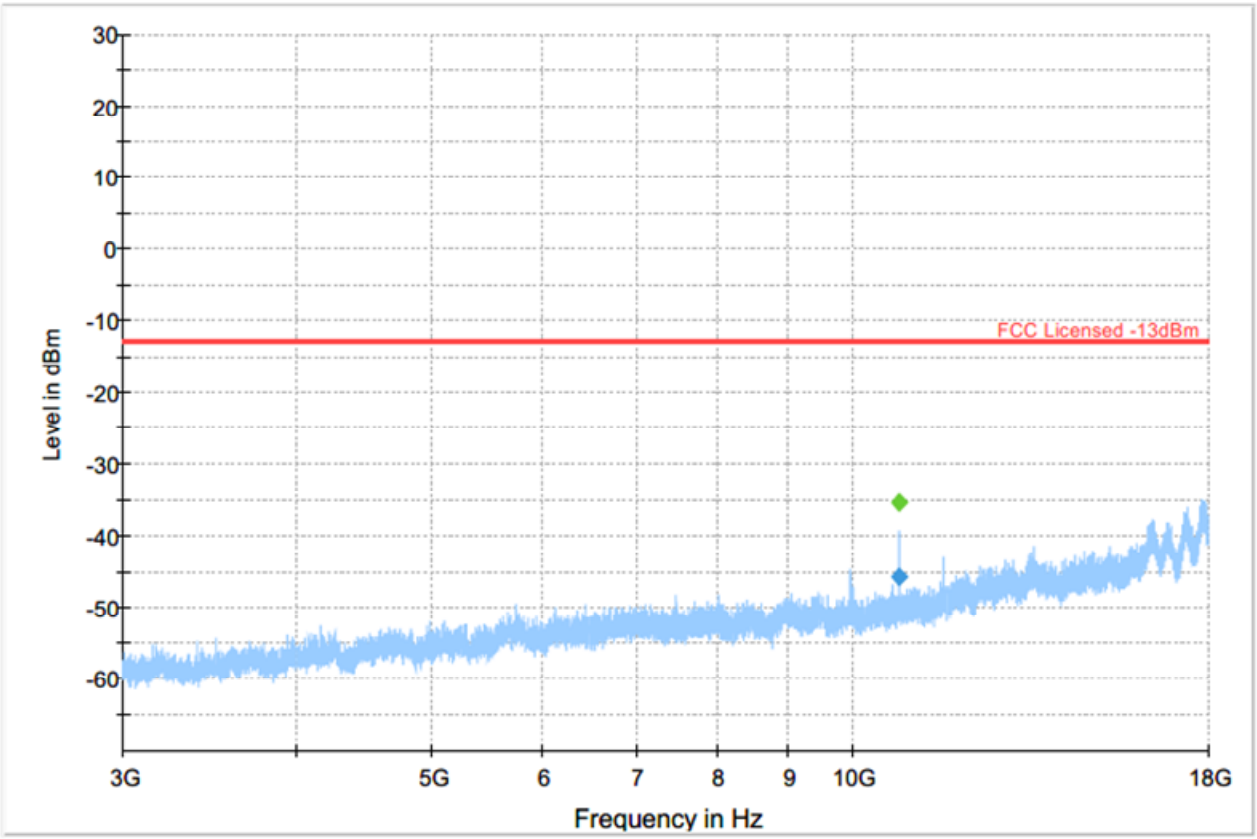


Plot # Radiated Emissions: 3-18 GHz

Configuration #1

Final Result

Frequency (MHz)	RMS (dBm)	MaxPeak (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
10810.75	---	-35.37	---	---	500.0	1000.0	107.0	H	232.0	-91.9
10810.75	-45.85	---	-13.00	32.85	500.0	1000.0	107.0	H	232.0	-91.9



Preview Result 1-PK+ FCC Licensed -13dBm Final_Result RMS Final_Result PK