

ISED CABid: ES1909

Test Report No:  
 NIE: 67283RRF.002

## Partial Test Report

Reference Standard:  
 USA FCC Part 24  
 CANADA IC RSS-133

(*) Identification of item tested	Smart watch
(*) Trademark	Navigil
(*) Model and /or type reference	580
Other identification of the product	HW version: C SW version: 3.0.23 FCC ID: -- IC: --
(*) Features	LTE Cat-M1 modem, GNSS receiver, Bluetooth beacon receiver
Applicant	Navigil USA Corp. 3739 Pinehurst Drive, Holiday, FL 34691, USA
Test method requested, standard	USA FCC Part 24 (10-1-19 Edition). CANADA RSS-133 Issue 6, Amendment 1, Jan. 2018. ANSI C63.26: 2015. KDB 971168 D01 Power Meas License Digital Systems v03r01, April. 2018.
Approved by (name / position & signature)	Rafael López EMC Consumer & RF Lab. Manager
Date of issue	2021-08-09
Report template No	FDT08_23 (*) "Data provided by the client"

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## Competences and guarantees

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DEKRA Testing and Certification S.A.U. is a testing laboratory competent to carry out the tests described in this report.

DEKRA Testing and Certification is a FCC-recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document. **IMPORTANT:** No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Testing and Certification S.A.U.

## General conditions

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification S.A.U.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

## Uncertainty

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Uncertainty (factor  $k=2$ ) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

## Data provided by the client

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The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample of the model 580 is a smart wrist watch with LTE Cat-M1 communication, GNSS receiver, Bluetooth beacon receiver and analog watch.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

## Usage of samples

Samples undergoing test have been selected by: the client.

- Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
67283B/001	Smart watch	580	1200000609	2021/04/22

Sample S/01 has undergone the following test(s): The Radiated tests indicated in Appendix A.

## Test sample description

Ports..... :	Port name and description	Cable			
		Specified max length [m]	Attached during test	Shielded	Coupled to patient <sup>(3)</sup>
	Power supply	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplementary information to the ports..... :	USB 5VDC power supply from provided AC wall charger. Connected to the watch via charging dock.				
Rated power supply .....	Voltage and Frequency				
	<input checked="" type="checkbox"/> DC:				
Rated Power .....	-				
Clock frequencies..... :	-				
Other parameters .....	-				
Software version .....	3.0.23				
Hardware version .....	C				
Dimensions in cm (W x H x D) .....	-				
Mounting position .....	<input type="checkbox"/> Table top equipment				
	<input type="checkbox"/> Wall/Ceiling mounted equipment				
	<input type="checkbox"/> Floor standing equipment				
	<input type="checkbox"/> Hand-held equipment				
	<input checked="" type="checkbox"/> Other:				
Modules/parts..... :	Module/parts of test item		Type	Manufacturer	
	-				
	-				
	-				
Accessories (not part of the test item) .....	Description		Type	Manufacturer	
	AC Wall charger		SWI5-5-I38	CUI Inc.	
Documents as provided by the applicant..... :	Description		File name	Issue date	
	-				
	-				
	-				

(3) Only for Medical Equipment

## Identification of the client

Navigil Oy  
Karaportti 5, 02610 Espoo, Finland

## Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-05-03
Date (finish)	2021-05-05

## Document history

Report number	Date	Description
67283RRF.002	2021-08-09	First release.

## Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

## Remarks and comments

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The test have been performed by the technical personnel: Cristina Calle, Miguel Manuel López and Alfonso Gutiérrez.

Used instrumentation:

### Radiated Measurements

	Last Calibration	Due Calibration
1. Semianechoic Absorber Lined Chamber ETS LINDGREN FACT 3 200 STP	N.A.	N.A.
2. Shielded Room ETS LINDGREN S101	N.A.	N.A.
3. Biconical/Log Antenna 30MHz - 6GHz ETS LINDGREN 3142E	2020/10	2023/10
4. Horn Antenna 1-18 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9120 D	2020/08	2023/08
5. Horn Antenna 18-40 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9170	2020/05	2023/05
6. RF Preamplifier G>30dB, 1-18GHz BONN ELEKTRONIK BLMA 0118-3A	2020/10	2021/10
7. RF Preamplifier 40 dB, 10 MHz - 6 GHz BONN ELEKTRONIK BLNA 0160-01N	2021/03	2022/03
8. Signal and Spectrum Analyzer 10 Hz - 40 GHz ROHDE AND SCHWARZ FSV40	2019/10	2021/10
9. EMI Test Receiver 7 GHz ROHDE AND SCHWARZ ESR7	2019/10	2021/10
10. Wideband Radio Communication Tester ROHDE AND SCHWARZ CMW500	N/A	N/A

## Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Not measured:	N/M

## Summary

FCC PART 24 / RSS-133 PARAGRAPH		
Requirement – Test case	Verdict	Remark
FCC 24.232 / RSS-133 6.4: RF Output Power	N/M	(1)
FCC 2.1047 / RSS-133 6.2: Modulation Characteristics	N/M	(1)
FCC 24.235 / RSS-133 6.3: Frequency Stability	N/M	(1)
FCC 2.1049: Occupied Bandwidth	N/M	(1)
FCC 24.238 / RSS-133 6.5: Spurious Emissions at Antenna Terminals	N/M	(1)
FCC 24.238 / RSS-133 6.5: Radiated Emissions	P	
<u>Supplementary information and remarks:</u> (1) Test not requested.		

## Appendix A: Test results for FCC Part 24 / RSS-133



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## TEST CONDITIONS

**POWER SUPPLY (\*):**

Vnominal: 5 Vdc

Type of Power Supply: USB.

(\*): Declared by the Applicant.

**TEST FREQUENCIES:**

**LTE Band 2. QPSK AND 16QAM MODULATIONS:**

Channel per Nominal Bandwidth (Frequency, MHz)						
	BW = 1.4 MHz	BW = 3 MHz	BW = 5 MHz	BW = 10 MHz	BW = 15 MHz	BW = 20 MHz
Low	18607 (1850.7)	18615 (1851.5)	18625 (1852.5)	18650 (1855)	18675 (1857.5)	18700 (1860)
Middle	18900 (1880)	18900 (1880)	18900 (1880)	18900 (1880)	18900 (1880)	18900 (1880)
High	19193 (1909.3)	19185 (1908.5)	19175 (1907.5)	19150 (1905)	19125 (1902.5)	19100 (1900)

## Radiated Emissions

### SPECIFICATION:

FCC §24.238. RSS-133 Clause 6.5.

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.

At  $P_o$  transmitting power, the specified minimum attenuation becomes  $43+10 \log (P_o)$ , and the level in dBm relative to  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mW}) - 30] = -13 \text{ dBm}$$

### METHOD:

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

The EUT was placed on a non-conductive stand at a 3 meter distance from the measuring antenna for measurements from 30 MHz up to 18 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded.

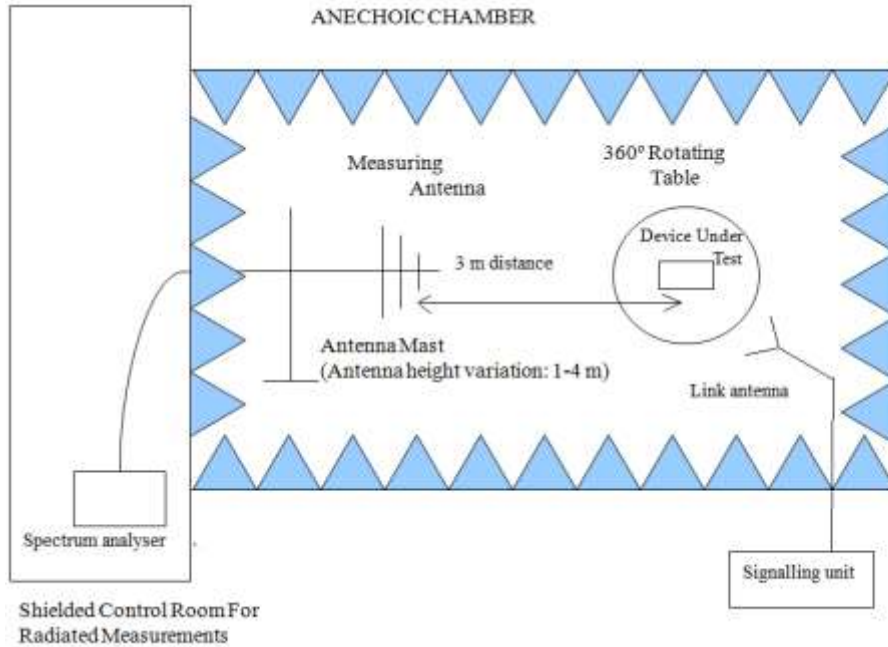
The maximum field strength (dB $\mu$ V/m) of each detected emission at less than 20 dB respect to the limit is converted to an equivalent EIRP level (dBm) according to ANSI C63.26 with the formula:

$$\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20 \log (D) - 104.8$$

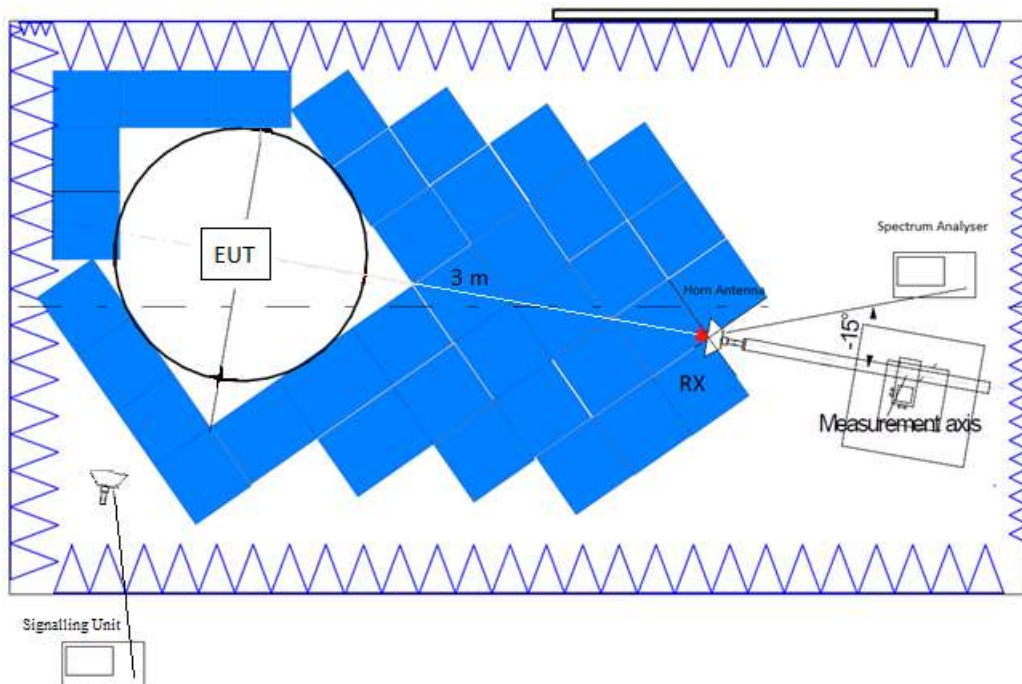
Where D is the measurement distance (in the far field region) in m.  $D = 3$  m.

**TEST SETUP:**

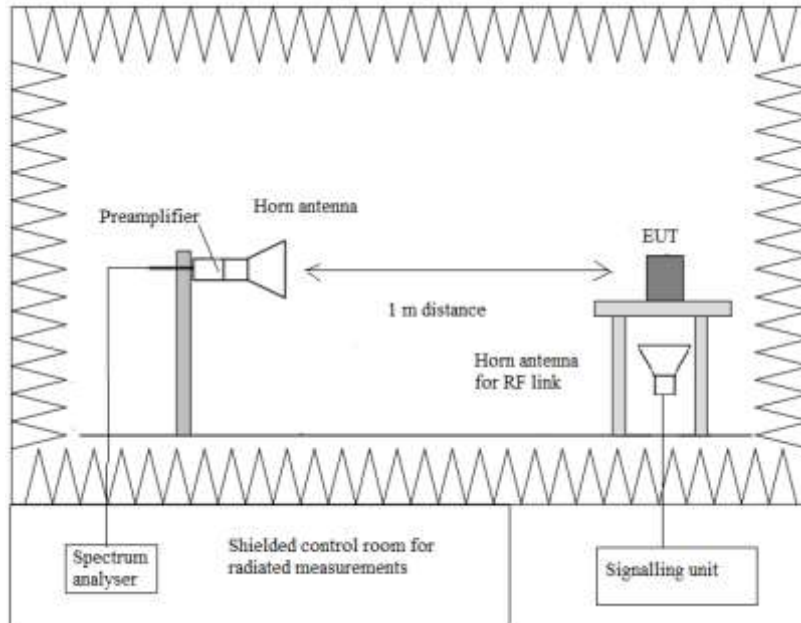
Radiated measurements below 1 GHz:



Radiated measurements in the range 1 to 18 GHz:



Radiated measurements above 18 GHz:



RESULTS:

**LTE Band 2:**

A preliminary scan determined the 16QAM modulation, Nominal Bandwidth of 10 MHz as the worst-case. The next results are for the worst-case.

- **LOW CHANNEL (RB:6-NB:0):**

**Frequency range 30 MHz - 1 GHz:**

No spurious frequencies at less than 20 dB below the limit.

**Frequency range 1 - 18 GHz:**

No spurious frequencies at less than 20 dB below the limit.

**Frequency range 18 - 20 GHz**

No spurious frequencies at less than 20 dB below the limit.

- **MIDDLE CHANNEL (RB:6-NB:4):**

**Frequency range 30 MHz - 1 GHz**

No spurious frequencies at less than 20 dB below the limit.

**Frequency range 1 GHz-18 GHz**

No spurious frequencies at less than 20 dB below the limit.

**Frequency range 18 - 20 GHz**

No spurious frequencies at less than 20 dB below the limit.

- **HIGH CHANNEL (RB:6-NB:7):**

**Frequency range 30 MHz - 1 GHz**

No spurious frequencies at less than 20 dB below the limit.

**Frequency range 1 GHz-18 GHz**

Spurious frequency (MHz)	Detector	E.I.R.P (dBm)	Polarization
5715.00	Peak	-30.97	H

**Frequency range 18 - 20 GHz**

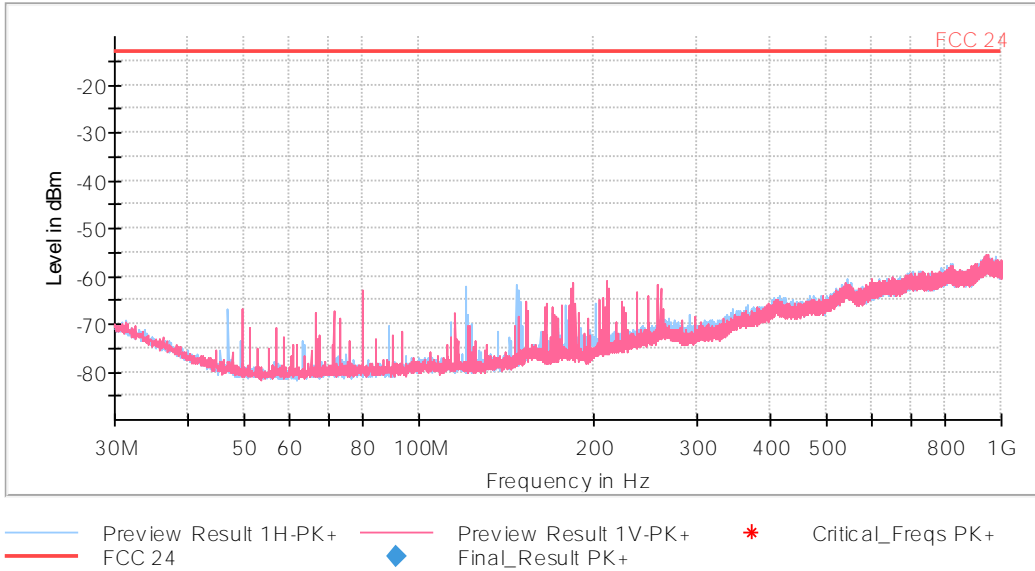
No spurious frequencies at less than 20 dB below the limit.

Measurement Uncertainty (dB):                      <± 5.08 for f ≥ 30 MHz up to 1 GHz  
   <± 5.13 for f ≥ 1 GHz up to 17 GHz  
   <± 4.82 for f ≥ 17 GHz up to 20 GHz

Verdict: PASS

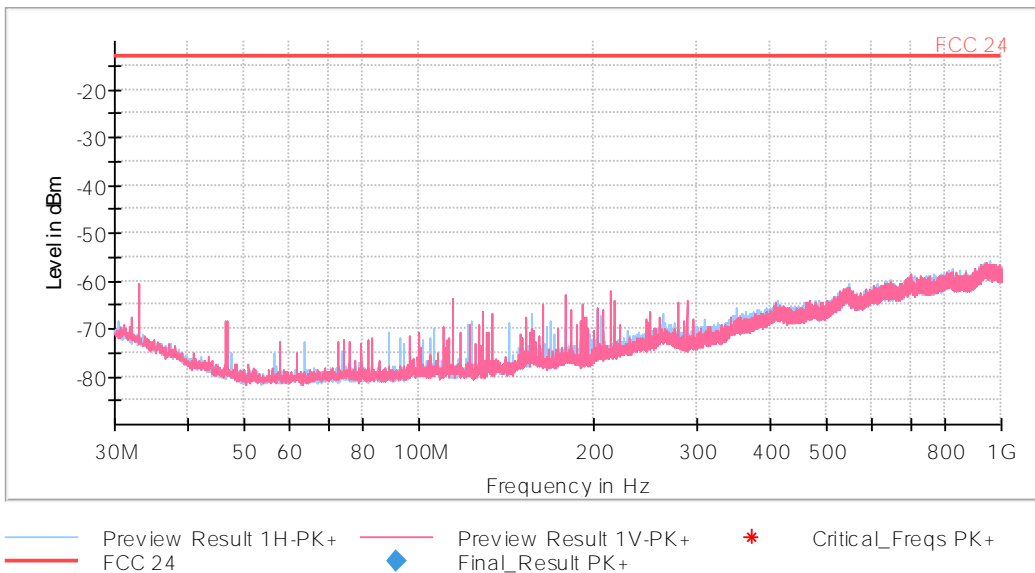
**FREQUENCY RANGE 30 MHz - 1 GHz:**

- Low Channel:



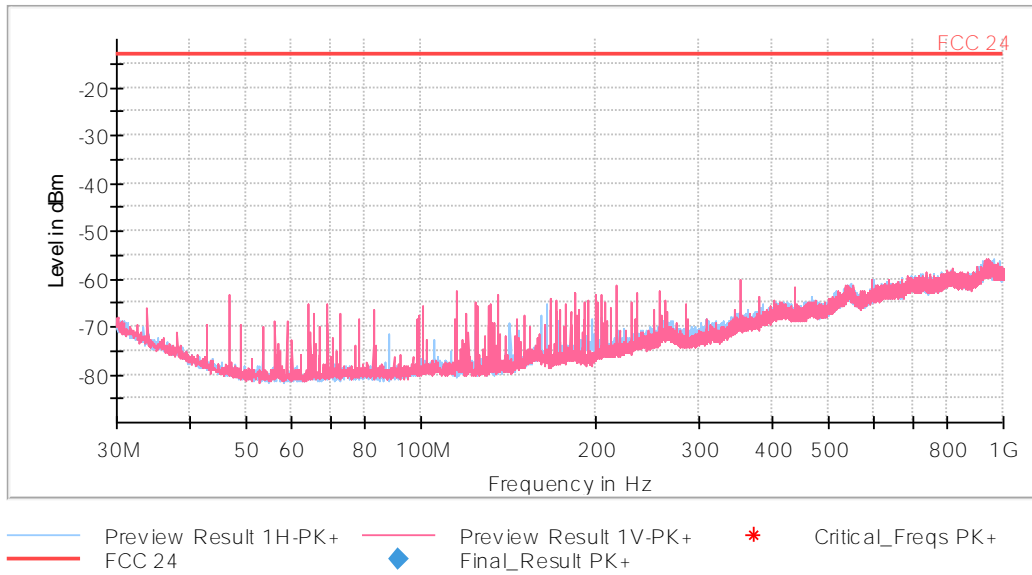
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

- High Channel:

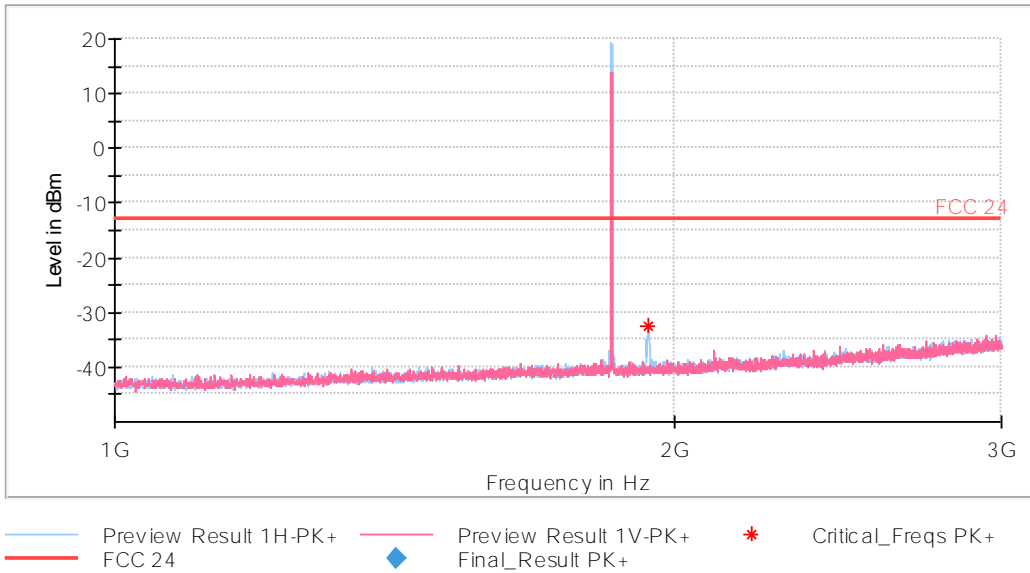


The peak above the limit is the carrier frequency.



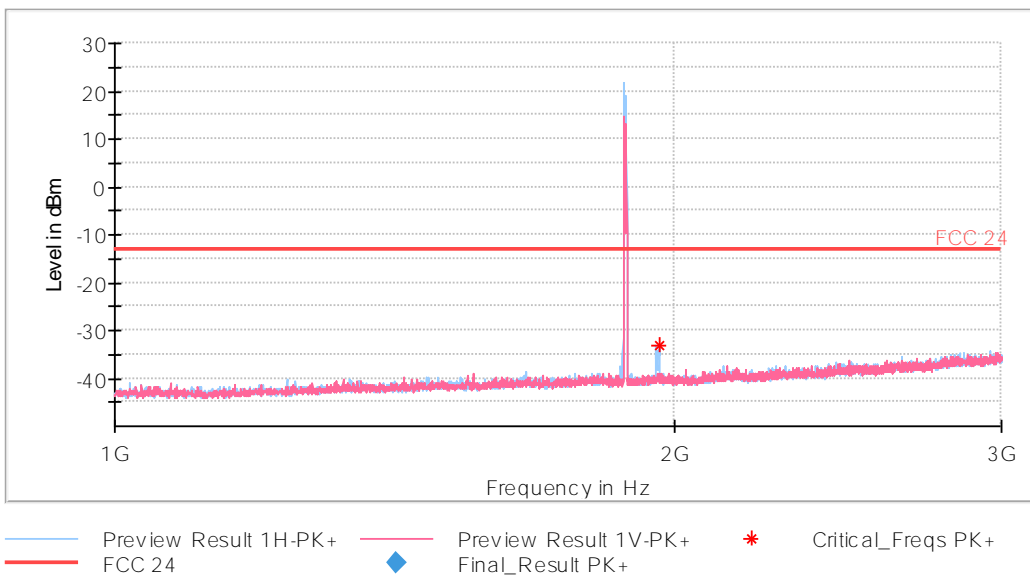
**FREQUENCY RANGE 1 - 3 GHz:**

- Low Channel:



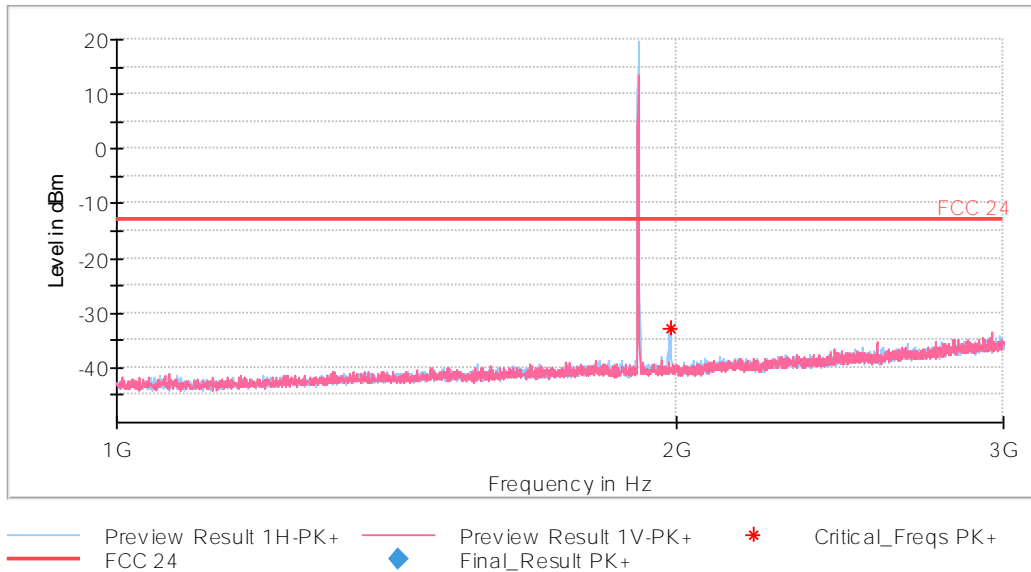
The peak above the limit is the Uplink carrier frequency.  
 The peak in blue is the Downlink.

- Middle Channel:



The peak above the limit is the Uplink carrier frequency.  
 The peak in blue is the Downlink.

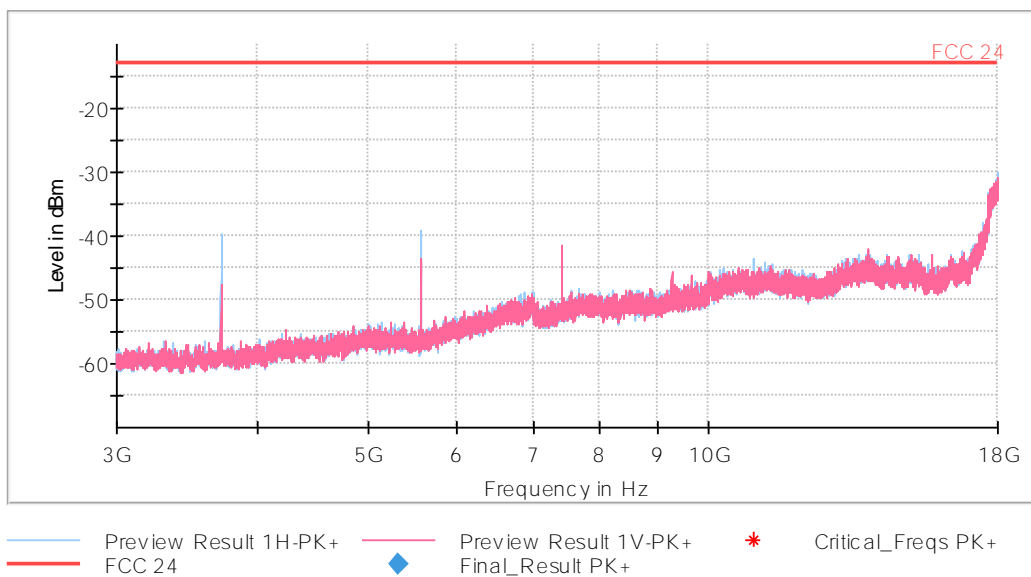
- High Channel:



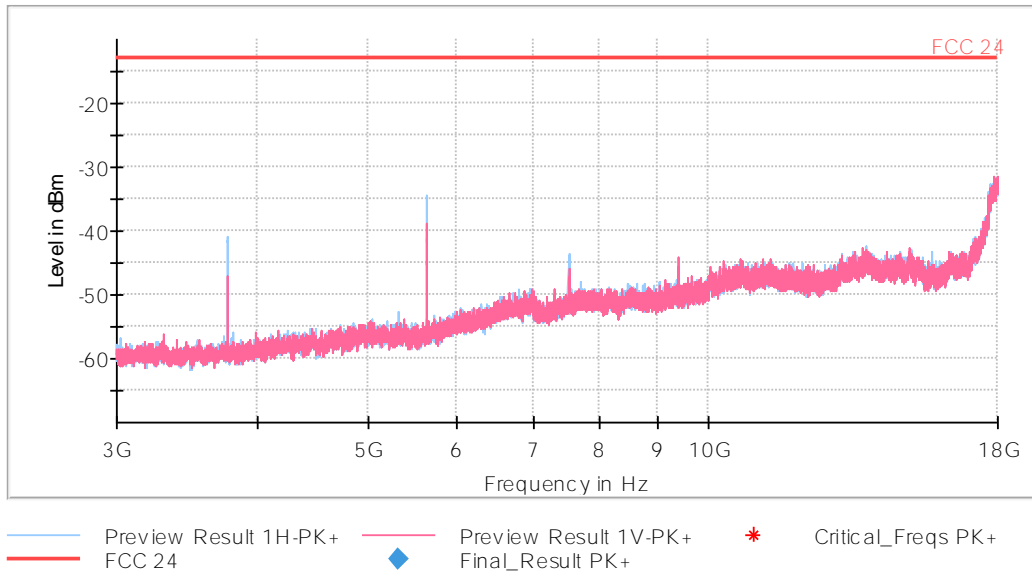
The peak above the limit is the Uplink carrier frequency.  
 The peak in blue is the Downlink.

**FREQUENCY RANGE 3 - 18 GHz:**

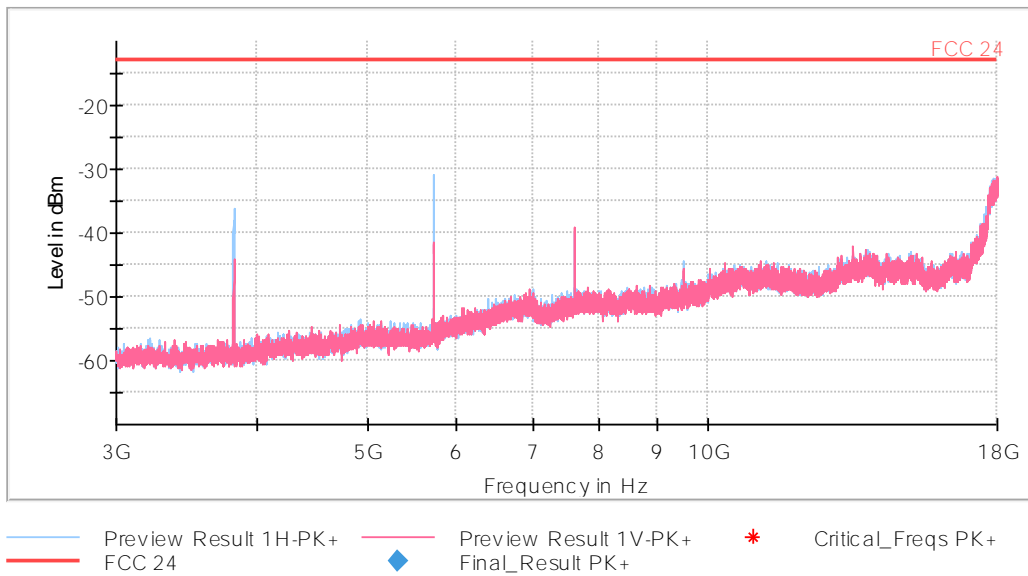
- Low Channel:



- Middle Channel:

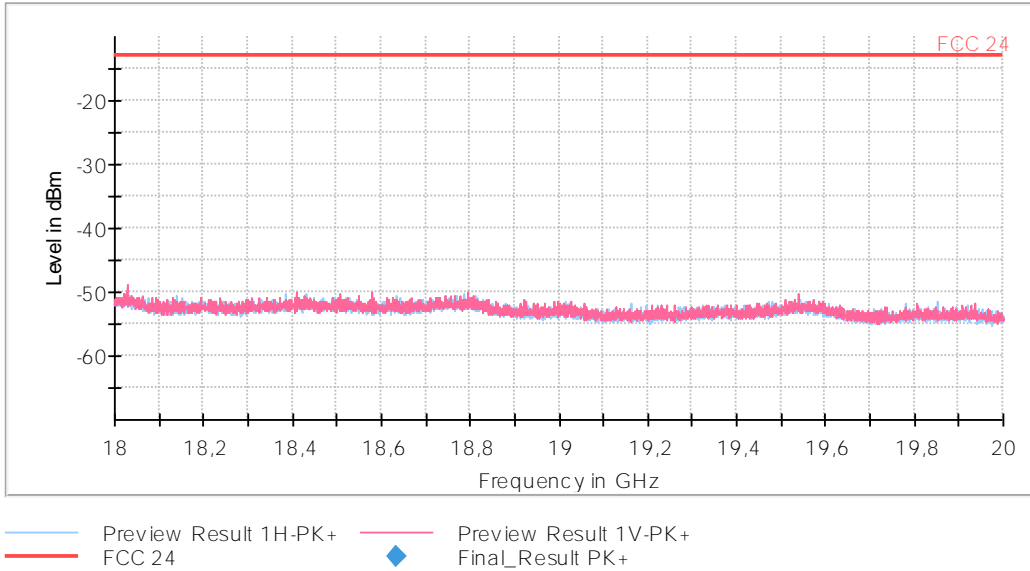


- High Channel:

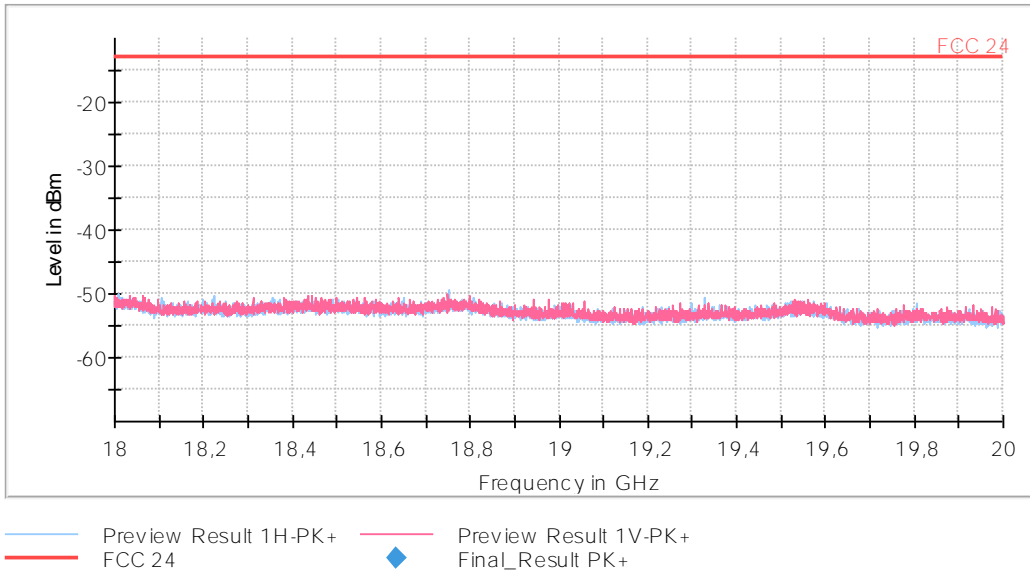


**FREQUENCY RANGE 18 - 20 GHz:**

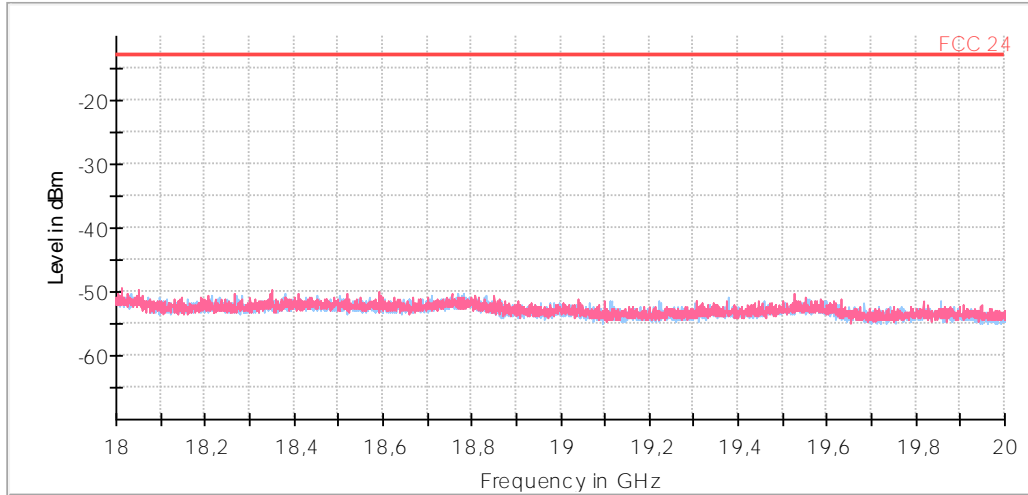
- Low Channel:



- Middle Channel:



- High Channel:



— Preview Result 1H-PK+    — Preview Result 1V-PK+  
— FCC 24    ◆ Final\_Result PK+