

From: [Mormino, John \(FAA\)](#)
To: [Tony Costa](#)
Cc: [Joshua Hollingshead](#); [Casey Standifer](#); [Judge, David M CTR \(FAA\)](#); [Thomas, Stephanie \(FAA\)](#)
Subject: [EXTERNAL] RE: FCC exhibit
Date: Thursday, February 13, 2020 3:45:19 PM
Attachments: [image001.png](#)

Tony,

The list of frequencies shown on the WEB FCR site was taken from the NTIA manual and does not include all the frequencies used by the FAA. For now I'm told that when you coordinate with the FCC, any frequency used by the FAA that are not shown on this list, the FCC will direct the proponent to coordinate with the FAA.

The 122.015 Mhz would have to be coordinated with the FAA and since you are requesting permanent use of the frequency for test it will be rejected.

If you still need a VHF frequency Spectrum HQ suggest using FCC/AFTRCC frequencies:

123.125 to 123.275 MHz Flight Test

123.325 to 123.475 MHz Flight Test

123.525 to 123.575 MHz Flight Test

John Mormino
Frequency Management Officer, Spectrum Engineer
Federal Aviation Administration (FAA)
ESA Spectrum Engineering Services, AJW-1C5
Office: 718 977 6546

From: Tony Costa <tony.costa@sncorp.com>
Sent: Thursday, February 13, 2020 4:01 PM
To: Mormino, John (FAA) <John.Mormino@faa.gov>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Judge, David M CTR (FAA) <David.M-CTR.Judge@faa.gov>; Thomas, Stephanie (FAA) <Stephanie.Thomas@faa.gov>
Subject: RE: FCC exhibit

John,

Any update on this? Again I can live without these frequencies. I suppose if I just scratch them from my intended transmit list then there is no need for FAA coordination as all others fall out of the coordination required bands.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation

Work # 301-665-1294 x 121484
Cell # 240-291-1277

From: Tony Costa
Sent: Tuesday, February 4, 2020 2:55 PM
To: 'Mormino, John (FAA)' <John.Mormino@faa.gov>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Judge, David M CTR (FAA) <David.M-CTR.Judge@faa.gov>; Thomas, Stephanie (FAA) <Stephanie.Thomas@faa.gov>
Subject: RE: FCC exhibit

John,

No problem let me know what you find out. The chart is directly from the WebFCR site. Believe it's a hyperlink in the first page or so of the Application site.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation
Work # 301-665-1294 x 121484
Cell # 240-291-1277

From: Mormino, John (FAA) <John.Mormino@faa.gov>
Sent: Tuesday, February 4, 2020 2:46 PM
To: Tony Costa <tony.costa@sncorp.com>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Judge, David M CTR (FAA) <David.M-CTR.Judge@faa.gov>; Thomas, Stephanie (FAA) <Stephanie.Thomas@faa.gov>
Subject: [EXTERNAL] RE: FCC exhibit

Tony,

I've e-mailed Spectrum HQ group to find out why the list below does not include the 2 frequencies 122.015 and 963.570. Also to make sure I'm giving you correct information. There have been some changes in what frequencies we use in the 122.1 to 122.5 MHz frequency band.

Can you tell me what web site you got this list from ?

John Mormino
Frequency Management Officer, Spectrum Engineer
Federal Aviation Administration (FAA)
ESA Spectrum Engineering Services, AJW-1C5
Office: 718 977 6546

From: Tony Costa <tony.costa@sncorp.com>
Sent: Monday, February 03, 2020 4:51 PM
To: Mormino, John (FAA) <John.Mormino@faa.gov>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Judge, David M CTR (FAA) <David.M-CTR.Judge@faa.gov>; Thomas, Stephanie (FAA) <Stephanie.Thomas@faa.gov>
Subject: RE: FCC exhibit

John,

Understand. The three frequencies below with conflicts were not excluded or had special conditions in my Experimental STA previously. See attached. We have not had a chance to utilize our STA so no harm. I do have a couple of questions?

The two frequencies 122.015 and 963.570 are out of the bands requiring FAA coordination according to this chart on the website. Am I missing something? I can live without them I just want to make sure I understand.

If you have a requirement to transmit in any of the below frequency bands, you are required to coordinate with the FAA:

190-285 kHz	1030 MHz
285-435 kHz	1031-1087 MHz
510-535 kHz	1090 MHz
74.800-75.200 MHz	1094-1150 MHz
108.000-121.9375 MHz	1157-1213 MHz
123.5875-128.8125 MHz	1215-1390 MHz
132.0125-137.000 MHz	2700-2900 MHz
225-400 MHz**	5000-5250 MHz
328.600-335.400 MHz	9000-9200 MHz
978-1020 MHz***	

I was in the process to day of requesting 128.485 via webFCR. Knowing that you all wont issue me that I suppose there is no coordination required with you all. I did correspond with AFTRC and all frequency's requested fell out of their prevue as well. Appreciate all your insight I just want to make sure I am covering my bases here with all agencies concerned.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation
Work # 301-665-1294 x 121484
Cell # 240-291-1277

From: Mormino, John (FAA) <John.Mormino@faa.gov>
Sent: Monday, February 3, 2020 4:18 PM
To: Tony Costa <tony.costa@sncorp.com>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Judge, David M CTR (FAA) <David.M-CTR.Judge@faa.gov>; Thomas, Stephanie (FAA) <Stephanie.Thomas@faa.gov>
Subject: [EXTERNAL] RE: FCC exhibit

Tony,

I'm not sure if I will be involved with this project. Maybe just the VHF band (118 to 136 MHz). But I have a few questions.

Can you verify that the following 3 frequencies are correct?

122.015 MHz ---- EFAS

128.485 MHz ---- FAA uses frequencies 126.225 to 128.800 for ATC. I believe that the FAA can't assign you Air Traffic Control (ATC) frequencies, like 128.475 MHz, FAA uses 25 KHz channel spacing.

963.570 MHz --- Navaid band 960 to 1215 MHz

John Mormino
Frequency Management Officer, Spectrum Engineer
Federal Aviation Administration (FAA)
ESA Spectrum Engineering Services, AJW-1C5
Office: 718 977 6546

From: Tony Costa <tony.costa@sncorp.com>
Sent: Tuesday, January 28, 2020 11:55 AM
To: Mormino, John (FAA) <John.Mormino@faa.gov>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Jimenez, Mario CTR (FAA) <Mario.CTR.Jimenez@faa.gov>
Subject: RE: FCC exhibit

John,

Good morning. Appreciate the FAA working with us on receiving the Experimental STA from the FCC with regards to our Calibration effort. The STA is set to expire on 3/1/20 and I am trying to get ahead of the game a bit and will be applying for permanent authorizations from the FCC to continue testing on the rest of the fleet of aircraft we are under contract for. These tests will occur between March 2020 and October 2021. I will be completing this new application a little bit differently based upon lessons learned on the STA process. I know the first time we did not have a location specified and went for a mobile application with a large TX radius. Now we have determined a fixed location for operations and have also defined azimuth limits of transmit ops to a 60 degree cone to the west. Hopefully this will help. I am also going for a much smaller frequency set than before and I have taken into consideration notched band limitations identified by your group as well as the FCC.

I have developed a revised exhibit I will be submitting with my application. Is there any way you or your team can take a look at it and advise of any conflicts that jump out at you? Again thanks for your support. Attached is the exhibit as well as our expiring STA license.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation
Work # 301-665-1294 x 121484
Cell # 240-291-1277

From: Tony Costa
Sent: Thursday, October 3, 2019 3:01 PM
To: 'Mormino, John (FAA)' <John.Mormino@faa.gov>
Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey.standifer@sncorp.com>; Jimenez, Mario CTR (FAA) <Mario.CTR.Jimenez@faa.gov>
Subject: RE: FCC exhibit

John,

Answers to your questions below:

- 1) Is the total time you require these VHF frequencies just 8 hours over a 2 day period, or is this going to be an ongoing calibration for different aircraft contracts?

We are presently under contract to test seven aircraft under one program. The first two aircraft are being completed at roughly the same time and we anticipate having to do this test a few weeks apart for each aircraft in the January 2020 time frame. The other aircraft will be modified one at a time and spaced about 6 months apart over the next two years.

That being said SNC would eventually desire the capability to utilize this approach on other aircraft projects but it is not a requirement at this time. SNC would like to eventually operate a "Calibration"

station and offer that service to our customers for these special collection type platforms.

- 2) You state that your transmissions on these VHF frequencies is 10 milli-sec over a 1 second period. What would be the minimum delay between transmissions of these same VHF frequencies again? During our phone conversation someone said 2 minutes.

During our phone conversation Joshua was incorrect. I have reconfirmed that based upon the number of frequencies in our frequency plan that each individual frequency would be active for 10 ms each second. It takes roughly 1 second to get through all 325 frequencies in that range. Another way to look at it is each VHF frequency (or all 325) will be transmitting for 4 continuous hours at a rate of 10 ms per second.

- 3) In the frequency assignment you entered "360" for XAZ. This means that you would be pointing your directional antenna due North. Is this correct or did you mean any direction? Also, could you run your calibration if the FAA required you to point the directional antenna in one specific direction? This would be to minimize potential interference with existing users of the same frequency.

My mistake on antenna direction. I did mean any direction. We could complete the calibrations in any direction we would be allowed. The flight tracks are fairly short and I think that at the longest range we calculated we only had to change the antenna directions by a few degrees to keep the RF saturated at the aircraft. We are not opposed to the FAA offering an azimuth range. Hagerstown sits in a valley and we would prefer a direction between 260-280 degrees from KHGR. But we can most likely make anything work.

- 4) Could you provide 1 or 2 locations where you could transmit as opposed to anywhere is a 81 nm radius of your facility?

We would like to be able to test out of our facility located at the KHGR airport. The Lat/Lon is 39.711817, -77.724322. If there is somewhere more conducive to gaining authorizations within that 81 nm radius please advise and we can talk through it. I believe staying to the west of Hagerstown would be preferred.

I sincerely appreciate the FAA's attention on this request. I know it is a large one especially in the geographic area that we are located and the amount of frequencies we have requested. Again if there are any other questions please let me know.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation
Work # 301-665-1294 x 121484
Cell # 240-291-1277

From: Mormino, John (FAA) <John.Mormino@faa.gov>

Sent: Thursday, October 3, 2019 11:45 AM

To: Tony Costa <tony.costa@sncorp.com>

Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey_standifer@sncorp.com>; Jimenez, Mario CTR (FAA) <Mario.CTR.Jimenez@faa.gov>

Subject: [EXTERNAL] RE: FCC exhibit

Tony,

I have a few questions:

- 1) Is the total time you require these VHF frequencies just 8 hours over a 2 day period, or is this going to be an ongoing calibration for different aircraft contracts?
- 2) You state that your transmissions on these VHF frequencies is 10 milli-sec over a 1 second period. What would be the minimum delay between transmissions of these same VHF frequencies again? During our phone conversation someone said 2 minutes.
- 3) In the frequency assignment you entered "360" for XAZ. This means that you would be pointing your directional antenna due North. Is this correct or did you mean any direction? Also, could you run your calibration if the FAA required you to point the directional antenna in one specific direction? This would be to minimize potential interference with existing users of the same frequency.
- 4) Could you provide 1 or 2 locations where you could transmit as opposed to anywhere is a 81 nm radius of your facility?

John Mormino

Frequency Management Officer, Spectrum Engineer

Federal Aviation Administration (FAA)

ESA Spectrum Engineering Services, AJW-1C5

Office: 718 977 6546

From: Tony Costa <tony.costa@sncorp.com>

Sent: Tuesday, September 24, 2019 1:46 PM

To: Mormino, John (FAA) <John.Mormino@faa.gov>

Cc: Joshua Hollingshead <joshua.hollingshead@sncorp.com>; Casey Standifer <casey_standifer@sncorp.com>

Subject: FCC exhibit

John,

Good talking to you today. I did attach this FCC exhibit to my application via webFCR. Anyway this is a synopsis of what we're trying to accomplish. We have a receive only system on the aircraft that needs to be calibrated. Part of that is hitting the aircraft from the ground with as many frequencies that we can from 20 Mhz to 1 Ghz. We plan on using 1.3 % frequency spacing which equates to about 323 specific frequencies across this band. We plan on completing this test on 7 aircraft to gather aircraft specific calibration data. This test is anticipated to take two days (4 hrs per day) for a total of 8 hours per aircraft. The signals will be 10 ms ON and 25 ms OFF and will repeat themselves every second. So for any one frequency it will be up for 10 ms every second. There will be no modulation transmitted just a carrier at each frequency with a bandwidth of .500 kHz.

The service area requested was rather large as we were not sure exactly where the Mobile Transmit station would be allowed to operate at the frequencies we need. We can tighten that up significantly. The aircraft maximum altitude would be 30K feet, and as Josh has mentioned on the phone we may need to go as far away as 100Km from the transmit site.

Please review the attached FCC exhibit and feel free to contact me directly with any questions or concerns you may have with this request. I understand you specifically may be responsible for the ATC band of VHF but if your cohorts are responsible for other bands feel free to share this exhibit with them.

v/r,

Anthony Costa
Principal Systems Engineer
Tony.Costa@sncorp.com
Sierra Nevada Corporation
Work # 301-665-1294 x 121484
Cell # 240-291-1277

CONFIDENTIALITY NOTICE - SNC EMAIL: This email and any attachments are confidential, may contain proprietary, protected, or export controlled information, and are intended for the use of the intended recipients only. Any review, reliance, distribution, disclosure, or forwarding of this email and/or attachments outside of Sierra Nevada Corporation (SNC) without express written approval of the sender, except to the extent required to further properly approved SNC business purposes, is strictly prohibited. If you are not the intended recipient of this email, please notify the sender immediately, and delete all copies without reading, printing, or saving in any manner. ---
Thank You.