

Subject: FAA Concurrence of Record TRK 210446, Project: COLLINS MODE S

Dear thomas.a.voltero@raytheon.com,

The FAA Spectrum Engineering Services has completed the review of your Frequency Coordination Request.

TRK 210446 is assigned an FAA Coordination number NG T210464 that indicates FAA's coordination that may or may not include operational limits/conditions as part of the requirement for FAA concurrence. The FAA Spectrum Engineering Services has provided the following comments:

COMMENTS: NONE

Please note that this concurrence does not constitute authority to transmit. Your authority to transmit must be obtained from the FCC.

Please provide this concurrence notice to the FCC as part of your frequency application, to demonstrate completion of the FAA coordination process. The FAA Coordination number is only valid until 1/9/2022; if you need an extension, please submit an inquiry via WebFCR .

The attached file contains a Card 3 format with all technical and operational parameters; operations are required to be contained within these parameters for the FAA's concurrence to remain valid. If any of these parameters change, the license to transmit shall be re-coordinated with the FAA and updated with the FCC. A document that explains each field of the Card 3 format in plain text is attached.

The following Revision Table outlines key parameters of this coordination:

| Attribute             | Record Parameter     |
|-----------------------|----------------------|
| Serial Number         | NG T210464           |
| Frequency             | M1030.0000           |
| City                  | OKEECHOBEE           |
| State                 | FL                   |
| Transmitter Radius    | 0026                 |
| Transmitter Longitude | 0805047.00W          |
| Receiver Latitude     | 265853.00N           |
| Receiver Longitude    | 0804843.00W          |
| Equipment Type        | C,RWC TTR-2100,PD0.8 |
| Antenna Type          | MONOPOLE             |

Best regards,

FAA Spectrum Engineering Services

\$\$ADD NG T210464  
TYP01 N  
DAT01 210713  
CLA01 U  
FRQ01 M1030.0000  
EXD01 210811  
STC01 XD  
EMS01 12M10V1D  
PWR01 W269.00000  
XSC01 FL  
XAL01 OKEECHOBEE  
XLA01 265853N  
XLG01 0805047W  
XAD01 2.5GMONOPOLE  
XAP01 V  
XAZ01 090  
RSC01 FL  
RAL01 OKEECHOBEE  
RLA01 264151N  
RLG01 0804843W  
RAD01 01GMONOPOLE 0002T  
RAP01 V  
RAZ01 ND  
RSC02 FL  
RAL02 OKEECHOBEE  
RLA02 265201N  
RLG02 0803741W  
RAD02 01GMONOPOLE 0002T  
RAP02 V  
RAZ02 ND  
RSC03 FL  
RAL03 OKEECHOBEE  
RLA03 265944N  
RLG03 0810403W  
RAD03 01GMONOPOLE 0002T  
RAP03 V  
RAZ03 ND  
RSC04 FL  
RAL04 OKEECHOBEE  
RLA04 270904N  
RLG04 0805211W  
RAD04 01GMONOPOLE 0002T  
RAP04 V  
RAZ04 ND  
RSC05 FL  
RAL05 OKEECHOBEE  
RLA05 264957N  
RLG05 0810528W  
RAD05 01GMONOPOLE 0002T  
RAP05 V

RAZ05 ND

BUR01 FCC

BIN01

REM01 \*PRR,5

REM02 \*RAD,0048,0026NM,T

REM03 \*EQT,C,RWC TTR-2100,PD0.8

REM04 \*EQR,C,RWC TDR-94

REM05 \*NTS,M018,FAA ,210713,AJIMENE,NG T210464

SUP01 PURPOSE OF THIS REQUEST IS TO DEMONSTRATE TRILATERATION USING UF0 INTERR  
SUP02 OGATIONS TO ELICIT DF16 REPLIES WITH LAT/LON/ALT FROM GROUND-BASED TRANS  
SUP03 PONDERS. THE SYSTEM SHALL ONLY INTERROGATE MODE S UF0 (MODE C NOT AUTHOR  
SUP04 IZED). INTERROGATIONS SHALL BE ADDRESSED TO ONLY FIVE TRANSPONDERS THAT  
SUP05 ARE PLACED ON THE GROUND FOR THIS EXPERIMENT (ICAO ADDRESSADFBAA9, ADFBAA  
SUP06 , ADFBAB, ADFBAC, ADFBAD). A MAXIMUM OF ONE INTERROGATION PER TARGET IN  
SUP07 A SECOND IS ALLOWED, WITH A MAXIMUM OF FIVE INTERROGATIONS PER SECOND. R  
SUP08 ADIATION ONLY AUTHORIZED DURING 0600-1000 LOCAL TIME. CEASE BUZZER POC:  
SUP09 PRIMARY ROBERT HERRING 239-738-9557, BACKUP ERIK JUUL 321-698-3745. CO  
SUP10 ORDINATION WITH AIR TRAFFIC CONTROL IS REQUIRED.

**The NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management**  
**APPLICATION Format (Card-3)**

This document outlines a **small subset of the formatting rules** for the NTIA Card3 format that is defined in Chapter 9 Section 9.7.1 and the following sections which must be strictly adhered to.

Please refer to the NTIA Manual as noted for additional formatting information or for any parameter that is not listed in this brief summary below. The NTIA Manual URL:

<https://www.ntia.doc.gov/page/2011/manual-regulations-and-procedures-federal-radio-frequency-management-redbook>

**The COMMAND ENTRY.** (Primary focus of intent for the operation being attempted)

The COMMAND ENTRY must always be the first entry. This entry consists of the application processing COMMAND and the RECORD IDENTIFIER (Agency Serial Number (SER)).

(1) The COMMAND is designated with one of three coded entries:

- (a) **\$\$ADD**--for NEW and NOTIFICATION actions; or
- (b) **\$\$CHG**--for MODIFICATION, RENEWAL, and DELETION actions.
- (c) **\$\$MOD**--for use only with MODIFICATION actions in accordance with NTIS Specifications.

(2) The RECORD IDENTIFIER is ALWAYS the Agency based Serial Number (SER) of the frequency assignment record.

(a) If \$\$ADD is used, the Agency Serial Number MUST be unique and MUST NOT already be recorded in the Government Master File (GMF).

(b) If \$\$CHG or \$\$MOD is used, the Agency Serial Number MUST be one which is recorded in the GMF.

Example: \$\$ADD NG 181234

**SER--Applicant Serial Number (10 Characters-1 Occurrence)**

This field is for the applicant's Serial Number (SER) of the application.

The Serial Number must ALWAYS be present and related to Agency of Non-Government entities.

Example: NG 200001

**TYP--Type of Action (1 Character--1 Occurrence)**

- a. NEW (N)--To apply for a new frequency assignment,
- b. NOTIFICATION (F)--To notify
- c. MODIFICATION (M)--To apply for the addition, substitution, or removal of one Parameters
- d. RENEWAL (R)--To apply for the extension of the period.
- e. DELETION (D)--To apply for the cancellation of a frequency assignment.

Example: TYP01 M

**DAT--Date (6 Characters--1 Occurrence)**

The date in year, month, and day order on which the application is prepared. Numeric characters only and no blanks.

Example: DAT01 200225

**FRQ--Frequency (13 Characters--1 Occurrence)**

First character enter one of the below codes to designate the category frequency:

K--for kilohertz

M--for Megahertz

G--for Gigahertz

Example: FRQ M2870.10

**PWR--Power (12 Characters--20 Occurrences)**

This field is for the transmitter output power normally supplied to the antenna transmission line

First character enter the unit of power as:

W-- for Watt

K -- for Kilowatt

M -- for Megawatt

Example: PWR K2.5 -- for 2 1/2 kilowatts

**XSC--Transmitter State/Country (4 Characters--1 Occurrence)**

Using one of the geographical abbreviations (State, Country, or Area)

Example: XSC01 CO -- for Colorado

**XAL--Transmitter Antenna Location (24 Characters--1 Occurrence)**

This field is for the name of the city or other geographical subdivision.

Example: XAL DALLAS

**XLA--Transmitter Antenna Latitude (7 Characters 1 Occurrence)**

Two characters each for the degrees, minutes, and seconds of the latitude of the site named XAL.

Coordinates referenced to the World Geodetic System Code 84/North American Datum 83

Example: XLA01 385351N

**XLG--Transmitter Antenna Longitude (8 Characters--1 Occurrence)**

Listed in degrees (3 characters), minutes (2 characters) and seconds (2 characters), the longitude of the site named in XAL. Coordinates referenced to the World Geodetic System Code 84/North American Datum 83.

Example: XLG01 0770133W

**SUP—Supplemental Details (72 Characters - 15 Occurrences)**

The is used primarily to record additional information and related frequency assignment comments that impact on the application and may assist in the engineering and analysis processes, including related usage factors.

**XAD--Transmitter Antenna Dimensions (24 Characters--1 Occurrence)**

This is a formatted parameter with Antenna Gain, Antenna Name, Antenna Elevation and Antenna Height.

(a) GAIN--The first two characters are a two-digit number representing the nominal gain of the antenna in decibels.

\*Note the letter G in the third space.

(b) ANTENNA NAME--Starting with the fourth character, to and including the 13<sup>th</sup> character is an abbreviation from the list of approved antenna names.

(c) ELEVATION--Starting with the 14th character, to and including the 18<sup>th</sup> character is a five-digit number representing the site (terrain) elevation in meters above mean sea level (MSL).

\*Note the letter H in the 19th space

(d) HEIGHT--Starting with the 20th character, begins a four-digit number representing the antenna height in meters above terrain. All four spaces are used, inserting leading zeros as applicable.

\*Note the letter T in the 24th space, which is the end of the parameter.

Example: XAD01 10GCRNRRFLCTR06550H0175T

### **RLA--Receiver Antenna Latitude (7 Characters--30 Occurrences)**

Two characters each for the degrees, minutes, and seconds of the latitude of the receiver.

Coordinates referenced to the World Geodetic System Code 84/North American Datum 83

Example: RLA01 385351N

### **RLG--Receiver Antenna Longitude (8 Characters--30 Occurrences)**

Position in degrees (3 characters), minutes (2 characters) and seconds (2 characters), the longitude of the receiver site. Coordinates referenced to the World Geodetic System Code 84/North American Datum 83.

Example: RLG01 0770133W

### **CLA--Classification (1 Character--1 Occurrence)**

This field is for the security classification of the assignment as determined in accordance with Executive Order 13526. Only one of the following codes in this field: (1) U--Unclassified (2) C--Confidential

### **Circuit Remarks (REM) (40 Characters-30 Occurrences)**

The CIRCUIT REMARKS field is used primarily to record frequency assignment characteristics that have no specific fields provided for them on the application.

Common Fields in Non-Federal assignments are:

\*RAD \*AGN \*EQT \*EQR \*EQS \*EBW \*PRR \*POC

Authorized Area of Operation (\*RAD)

Enter a radius of operation from a given geographical location for mobile stations, transportable stations.

#### Agency Data (\*AGN)

This CIRCUIT REMARKS field may be used to record agency data that are pertinent to the proposed assignment but not intended to be a part of the authority requested.

#### Equipment Characteristics (\*EQR, \*EQS, \*EQT)

- (1) All applications for new stations above 29.89 MHz shall contain the indicated data on equipment nomenclature where applicable.

#### Pulse Repetition Rate (\*PRR)

On an application for assignment to a station using a secondary radar on the frequency 1030 MHz or for pulsed radars

#### Point of Contact (POC)

This field is required on all radio spectrum applications for use in United States and its possessions. This entry identifies the person and associated contact information that validated the assignment data is correct.

The field code REMnn is followed by a space, then the code \*POC followed by a comma. Then, the name of the individual (not to exceed 17 characters), with comma, and next the phone number of the person above using 10 characters, then comma. After this comma, the date when the data on the assignment was validated in 6 characters using the year, month, and day, type format.

Example: REM05 \*POC,JOHN SMITH,7037801234,110627