Recommendation WG 1.92.035

EARTH STATION EPCN FORMAT

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Source: Working Group 1

RECOMMENDATION

Subject: Electronic Prior Coordination Notice (EPCN) Formats

Title: Earth Station EPCN Format

This document contains the standard format for the electronic transfer of Earth Station Prior Coordination Notices (PCNs).

1. General Information.

A. In the field description tables, all fields marked 'Req' are required for intra-United States of America coordination only and must be included. That is, transborder coordinations may require the use of less or more fields for proper exchange of PCN data between American and Canadian companies or American and Mexican companies. Fields marked 'Con' are conditional, but may be required. If the conditions are not obvious, they are listed. Fields marked 'Opt' are optional. Fields marked 'Info' are informational and, if included, are used for verification.

The format of the PCN record is generic. That is, it is to be used for both Terrestrial and Earth Station EPCNs. When using the format for Terrestrial coordination the Earth Station specific fields are null, and vice versa when it used for Earth Station coordination. Specifically, fields 22, 23, and 24 are used only for Earth Station PCNs. All other fields may be used for either onon Earth Station coordination or a Terrestrial coordination.
B. For increased readability, use both upper and lower case letters for descriptions and narratives.

C. The Electronic Earth Station PCN consists of one PCN record followed by one Site record and may be followed by one or more Case records. If there are no precipitation scatter cases, there will be no Case records. If a PCN is informational, there might not be any Site or Case records.

D. The fields are separated with a tilde (~) and do not require justification or padding. There must be one delimiter (~) per field in each record whether the field is blank or not. Only printable, ASCII characters can be used for data. Each PCN, Site and Case record is followed by a <CR> and a <LF>

E. Use the two-character United States Postal Service standard abbreviation for the State Code.

F. There is sufficient room in all numeric fields for a minus sign (-) and, if needed, a decimal point, (.). If no sign is entered, the value is positive. If no decimal point is entered, the number is a whole number.

G. PCNs, Sites and Links marked informational may be responded to at the option of the recipient of the PCN.

2.0. PCN Record Description

The PCN record contains data describing the entire PCN, including who is doing the Coordinating and for which Owner/Licensee the coordination is being done. The relationship of this PCN to the previous PCN is included for tracking purposes.

As plans change, up or down links may be added or removed from the PCN, or the data itself may be changed. Five fields in the PCN record reduce confusion by linking this PCN to a previous PCN. The fields and their numbers are as follows: Internal PCN ID(3), PCN Date(4), PCN Type(24), Previous PCN ID(25) and Previous PCN Date(26).

For example, if an Owner/Licensee wants to add an up link to a PCN already in coordination, he/she would send a second PCN showing both links. In this case, field 24 of the second PCN would contain an 'S' to indicate this PCN supersedes another, and fields 25 and 26 would contain the PCN ID and PCN Date, respectively, of the superseded PCN.
These linking fields are used with fields at the frequency level. See Sections 3.3.1 and 3.3.2 for more information on these fields.

Table 1 gives a detailed description of the PCN record.

Table 1. PCN Record Fields

Field	Max Length	Description of Data Field	Con/Opt/Req
1	2	Type of Coordination Refer to Attachment 1	Req
2	15	Coordinating company code - Assigned by FCC or Canada - 0000 if no code assigned	Req
3	1	Coordinating company code suffix -Use for alternate mailing address	Opt
4	11	PCN Internal ID Con - Req far expediting trans-border coordination	
5	6	Date this PCN was issued - MMDDYY	Req
6	30	Frequency Coordinator name	Req
7	30	Frequency Coordinator title	Info
8	30	Frequency Coordinator street address	Req
9	22	Frequency Coordinator city	Req
10	2	Frequency Coordinator state	Req
11	10	Frequency Coordinator ZIP code	
12	10	Frequency Coordinator telephone	Req
13	15	Owner/Licensee company code - Assigned by Frequency Coordinator - 0000 if no code assigned	Req
14	1	Owner/Licensee code suffix - Use for alternate address	Opt
15	40	Owner/Licensee name	Req
16	30	Owner/Licensee street address	Req
17	22	Owner/Licensee city	Req
18	2	Owner/Licensee state	Req
19	10	Owner/Licensee ZIP code	Req
20	60	PCN site, hop or route description	Req
21	180	PCN description and purpose	Opt
22	6	Start of operation date - MMDDYY - Req if Temporary Earth Station	Con
23	6	End of operation date - MMDDYY - Req if Temporary Earth Station	Con
24	10	On-site Phone Number - Req if Temporary Earth Station	Con

Table 1. PCN Record Fields (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req

25	1	PCN type code - C:Cancel. - I:Informational PCN only - N:New PCN. No previous PCN. - R:Renewal PCN. No changes. - S:Superceding PCN	Req
26	11	Previous PCN Eternal ID - Req if field 25 is R. C, or S	Con
27	6	Date of previous PCN - MMDDYY - Req if field 25 is R. C, or S	Con
28	1	Owner/Licensee request - A: Site added with this PCN - C: Change existing site - D: Turn down existing site - N: No Change from previous PCN - R: Remove PCN from Coordination - U: Turn up new site	Req
29	1	PCN Coordinate System refer to Attachment 2	Req
30	6	Requested reply date - MMDDYY - Req if field 25 is N. R. or S	Con
31	2	Number of Case records or pairs of path records - Could be 0 if field 25 is I	Req

Attachment 1

Types of Coordination

The following abbreviations are to used in Field 1 of the PCN Record Description:

1. CC - Common Carrier (terrestrial)
2. OF - Operational Fixed (pvt)
3. TV- Television
4. ES - Earth Station
5. CE - Canada Earth Station
6. CT- Canada Terrestrial
7. ME - Mexico Earth Station
8. MT - Mexico Terrestrial

Attachment 2

Coordinate System Designators

The following alphabetic or numeric characters are to be used in Field 29 to indicate the coordinate system used in the PCN to describe the site locations' latitude/longitude coordinates.

Character	Coordinate System
0	No coordinate system since PCN is only informational.
1	North American Datum83 (NAD/83)
2	North American Datum27 (NAD27)

3. Site Record Description

Site records contain all the technical information necessary to perform interference calculations including location, antenna, equipment, and frequency information.
There will always be only one Site record for an Earth Station PCN. Both the up link and down link frequencies will be included on the record.

3.1. Links to Previous Frequency

As PCNs are superseded, frequencies being coordinated can be added, deleted, or their data changed. The Up Link Status field shows the status of all fields relating to the transmitter as of the PCN date. The Down Link Status field shows the status of all fields associated with the receiver as of the PCN date.

A link being prior-coordinated is considered 'added' the first time it shows up on a PCN. A link is considered 'changed' on the first superseding PCN showing the changes. Otherwise, a link being prior-coordinated is considered 'not changed.'

For completeness and verification, the PCN should contain all links associated with the Earth Station that are controlled by the Owner/Licensee and coordinated through the Frequency Coordinator. The Up and/or Down Link Status fields will show the status of these links but these frequencies will not be considered under prior-coordination with this PCN.

All frequencies listed as Coordinated, License Applied For, or Construction Permit Granted will be renewed if this is a Renewal PCN.

Table 2 gives a detailed description of the Path record.

Table 2. Site Record Fields

Field	Max Length	Description of Data Field	Con/Opt/Req
1	8	Call Sign - Fictitious call signs start with '?' - Req if transmitter	
2	11	Site name	Req
3	2	Site state code	Req
4	1	Site change code N: No change from previous C: Changed from previous PCN	Req
5	3	Site latitude, degrees Use (-) to indicate South	Req
6	2	Site latitude, minutes	Req
7	4	Site latitude, seconds - tenths of a second	Req
8	4	Site longitude, degrees Use (-) to indicate East	Req
9	2	Site longitude, minutes	Req
10	4	Site longitude, seconds - tenths of a second	Req
11	1	Rain zone	Req
12	1	Radio climate	Req
13	5	Ground elevation - AMSL, feet	Req
14	5	Satellite longitude - Minimum - degrees (tenths of a degree)	Req
15	5	Satellite longitude - Maximum - degrees (tenths of a degree)	Req
16	5	Satellite azimuth - Minimum - degrees (tenths of a degree) - from North	Req
17	5	Satellite azimuth - Maximum - degrees (tenths of a degree) - from North	Req
18	4	Antenna elevation - East - degrees (tenths of a degree)	Req
19	4	Antenna elevation - West - degrees (tenths of a degree)	Req

Table 2. Site Record Fields

Field	Max Length	Description of Data Field	Con/Opt/Req
20	1	Up link status code - Prior-coordinate w/ this PCN: A: Added w/ this PCN D: Data changed w/ this PCN - N: No changed from previous PCN - Do not prior-coordinate w/this PCN: U: Under prior-coordination F: Finished prior-coordination L: Licensed applied for C: Construction permit granted O: Operational permanent T: Operational temporary R: Removed from operation ?: Status unknown, frequency used	Req
21	5	Maximum transmit power - dBW/4KHz (tenths of a dBW) - Req if transmitter	Con
22	5	Maximum EIRP - dBW/4KHz (tenths of a dBW) - Req if transmitter	Con
23	2	Transmit band - Req if transmitter	Con
24	60	Transmit Frequencies - Req if Temporary Earth Station transmitter and entire band is not used.	Con
25	6	Transmit antenna FCC code - Assigned by FCC - Use 0000 if unknown - Req if transmitter	Con
26	10	Transmit antenna manufacturer - Req if field 25 is 0000	Opt
27	20	Transmit antenna model number - Req if field 25 is 0000	Opt
28	4	Transmit antenna gain - dBi in main beam (tenths of a dBi) - Req if field 25 is 0000	Opt
29	4	Transmit antenna centerline height - AGL, feet - Req if transmitter	Opt
30	4	Transmit antenna pad/line loss - dB (tenths of a dB) - Req if transmitter	Opt
31	4	Transmit antenna half beam - 15dB half beam - deg (hundreths of a degree) - Req if transmitter	Opt
32	11	Transmitter modulation #1 - Req if transmitter See Attachment 1	Opt
33	11	Transmitter modulation #2	Opt

Table 2. Site Record Fields (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req

34	11	Transmitter modulation #3	Opt
35	10	Transmitter emission designator #1 - Req if transmitter	Opt
36	10	Transmitter emission designator #2	Opt
37	10	Transmitter emission designator #3	Opt
38	4	Maximum areas circle distance -km	Req
39	4	Maximum rain scatter distance -km	Req
40	1	Down link status code - Prior-coordinate w/ this PCN: A: Added w/ this PCN D: Data changed w/ this PCN N: Not changed w/ this PCN - Do not prior-coordinate w/this PCN: U.: Under prior-coordination F: Finished prior-coordination L: Licensed applied for C: Construction permit granted O.: Operational permanent T: Operational temporary R: Removed from operation ?: Status unknown, frequency used	Req
41	2	Receive Band Req if receiver	Opt
42	60	Receive frequencies - Req if Temporary Earth Station receiver and entire band is not used.	Opt
43	6	Receiver antenna FCC Code - Req If receiver - Use 0000 if unknown	Opt
44	10	Receiver antenna manufacturer name - Req if field 43 is 0000	Opt
45	20	Receiver antenna model number - Req if field 43 is 0000	Opt
46	4	Receiver antenna gain - dBi in main beam (tenths of a dBi) - Req if field 43 is 0000	Opt
47	4	Receiver antenna centerline height - AGL, feet - Req if a receiver	Con
48	4	Receiver antenna pad/line loss - dB (tenths of a dB) - Req if a receiver	Con
49	4	Receiver antenna half beam -15dB - degrees (hundreths of a degree) - Req if a receiver	Con
50	11	Satellite transmitter modulation #1 - Req if a receiver	Con
51	11	Satellite transmitter modulation #2	Opt
52	11	Satellite transmitter modulation #3	Opt

Table 2. Site Record Fields (Con'd)

Field	Max Length	Description of Data Field	Con/Opt/Req

53	10	Satellite transmitter emission designator #1 - Req if a receiver	Opt
54	10	Satellite transmitter emission designator #2	Opt
55	10	Satellite transmitter emission designator #3	Opt
56	4	Maximum great circle distance -km - req if a receiver	Opt
57	4	Maximum rain scatter distance -km - req if receiver	Opt
58	4	Maximum interference, long term - dBW, omit negative sign - req if a receiver	Opt
59	4	Maximum interference, short term - dBW, omit negative sign - req If receiver	Opt
60	5	Local Horizon Elevation Angle - 0 deg - degrees (tenths of a degree) - Enter sign and decimal point	Req
61	5	Local Horizon Elevation Angles - same as field 60	Req
	thru	- every 5 degrees from 5 through 355	
131			
132	5	Transmitter horizon gain - 0 deg - dBi (tenths of a dB) - Enter sign and decimal point - Required if transmitter	Con
133	5	Transmitter Horizon Gains - same as field 132	Con
	thru	- every 5 degrees from 5 through 355	
203			
204	5	Receiver horizon gain - 0 deg - dBi (tenths of a dB) - Required if receiver	Con
205	5	Receiver horizon gains - Same as field 204	Con
	thru	- every 5 degrees from 5 through 355	
275			

4. Case Record Description

Case records contain all the information pertaining to Precipitation Scatter Cases into and out of Terrestrial Microwave Stations.

For each Precipitation Scatter Case, there will be one Case record. There can be up to 99 Case records in a single Earth Station PCN.

Each time a PCN is superseded, all Case records should be included.

Table 3 gives a detailed description of the Case record.

Table 3. Case Record Fields

Field	Max Length	Description of Data Field	Con/Opt/Req
1	1	Type of Case - R for case into Earth Station - T for case from Earth Station	Req
2	11	Terrestrial transmitter name	Req
3	2	Terrestrial transmitter state code - USPS code	Req
4	8	Terrestrial transmitter call sign - Fictitious call signs start with '?'	Req
5	12	Terrestrial transmitter owner code - FCC assigned	Req
6	11	Terrestrial receiver name	Req
7	2	Terrestrial receiver state code - USPS code	Req
8	8	Terrestrial site call sign - Fictitious call signs start with '?'	Req
9	12	Terrestrial receiver owner code - FCC assigned	Req
10	4	Terrestrial station half beam - 15 dB - degrees with decimal point - Use terrestrial transmitter if field 1 is 'R' - Use terrestrial receiver if field 1 is 'T'	Req
11	4	Terrestrial centerline height - feet - Use terrestrial transmitter if field 1 is 'R' - Use terrestrial receiver if field 1 is 'T'	Req
12	5	Orbital longitude worst-case - Enter decimal point	Req
13	5	Margin from Objective - Enter sign and decimal point	Req

6. Example of an Electronic Earth Station Prior Coordination Notice

The following is an example of the Electronic Earth Station Prior Coordination Notice. Only the data and <CR><LF> would be entered. The record number and types are for illustration purposes only.

Record 1 (PCN type):

Sat~000015~~8829701001A~061389~Joe Timinsky~Project Manager~251 West Renner Road~Richardson~TX~75080~2146801000~297010~Equatorial Cormmunication Services~300 Ferguson Drive~Mountain View~CA~94043~Lake Geneva #380-4297 Transmit Only~This is a temporary Earth Station and will be used between 11/1/89 and 12/31/89 only.~1~10189~123189~4155551212~N~~~U~A~071889~2~<CR><LF>

Record 2 (Site Type):

~KEA64~Lake Geneva~WI~C~42~36~29.5~88~26~52.2~2~A~875~91~101~183.8~198.2~40.7~39.2~A~~
28~8.5~6~012.6,6017.6,6021.0,6052.6,6078.6~0000~Equatorial~C-201~3013~
01~36.5~12~0~3~DIGITAL~~~4M92G1D~~~62.1~62.1~~~~~~~~~~~~~~~~~~~~~.4~.3~.4~.6~1.1~1.
2~1.4~1.6~1.2~1.4~1.3~1.5~1.3~1.5~1.2~1.~1.3~1.5~1.6~1.4~1.2~1.1~1.5~1.6~1.9~1.8~1.7~1.6~2.~2.1~1.4~1.
4~1.5~1.2~1.2~1.4~1.6~1.8~2.1~2.1~1.8~1.8~1.8~1.6~1.6~1.2~1.~.9~.7~.5~.3~.2~.2~.4~.5~.5~.4~.4~.4~.5~.6~.
6~.6~.6~.5~.5~.6~.6~.6~.5~.4~.3~~11.4~~11.4~~11.3~~11.2~~11.2~~11.2~~11.3~~11.4~~11.6~~11.8~~12.1~~12.4~~
12.7~~13.~~13.3~~13.7~~14.~~14.4~~14.8~~15.1~~15.5~~15.9~~19.~~16.~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~
11.5~~11.5~~11.5~~11.5~~14.5~~14.1~~13.9~~13.7~~13.5~~13.3~~13.~~
13.5~~3.8~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~11.5~~16.~~16.~~16.~~15.7~~15.3~~15~~
14.6~~14.2~~13.9~~13.6~~13.2~~12.9~~12.6~~12.4~~12.1~~11.9~~11.7~~11.~~
11.5~~~~~~
~~~~~<CR><LF>

Record 3 (Case Type):
R~Chicago~IL~KSP74~~Aurora~IL~KIK64~~3.25~145~143.~~4.21<CR><L
F>

Record 4 (Case Type):
R~Madison~WI~KSP74~~WiscDells~WI~KIK64~~3.25~145~143.~~4.21<CR><L
F>
~~~~~

Abbreviations and Acronyms

AGL Above Ground Level

ASCII American Standard for Computer Information Interchange

ASK Amplitude Shift Keying

DAV Data Above Voice

dB Decibel

dBi Decibel relative to Isotropic Antenna

dBm Decibel relative to 1 milliwatt

DMSK Dual Minimal Shift Keying

DW Data Under Voice

FCC Federal Communications Commission

FDMFM Frequency Modulation with Frequency Division Multiplexing

FDMSSB Single-Side-Band Frequency Modulation with Frequency Division Multiplexing

FSK Frequency Shift Keying

Info Informational. These fields are not required under any circumstances. Because of variations in spelling, context or abbreviation, these fields cannot easily be used for computer analysis.

LF Line Feed. ASCII 10 decimal. Usually shown as <LF>

MBps Megabits per second

MHz Megahertz

MMDDYY Month, Day, and Year E.g., 030190 is March 1, 1990.

MSK Minimal Shift Keying

Opt Optional. These fields are optional but may be required in some cases. For example, if an FCC Owner Code for a company has not been assigned, the name, address, etc. must be supplied. The Optional information will be used to manually determine the local temporary number. If the code is supplied, the optional information will be ignored.

PCN Prior Coordination Notice. Can be Terrestrial Microwave or Earth Station/Satellite.

PSK Phase Shift Keying

nPSK n-Level Phase Shift Keying. 'n' can be 4, 8, or 16.

nQAM n-Level Quadrature Amplitude Modulation. 'n' can be 4, 8, 16, 32, or 64.

Abbreviations and Acronyms (cont'd)

QPRSn	Quadrature Partial Response System, Level n. 'n' can be 3, 7, 9, 25, or 49
QPSK	Quadrature Phase Shift Keying. Same as four-level Phase Shift Keying.
Req	Required. These fields are required under all circumstances. For Opt fields, the circumstances which make them Req fields are obvious or listed
VIDFM	Video with normal Frequency Modulation
VIDSSB	Video with Single-Side-Band Frequency Modulation

Attachment 1

- Analog systems: ANALOG; FDMFM; FDMSSB; DUV; DAV

- Digital systems: DIGITAL; FSK; ASK; MSK; DMSK; PSK; QPSK; 8PSK; 16PSK; 4QAM; 8QAM; 16QAM; 32QAM; 64QAM; QPRS3; QPRS7; QPRS9; QPRS25; QPRS49

- Video systems: VIDEO; VIDFM; VlDSSB

- Hybrid

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