

# Fusion Identification

Identification techniques used on Yaesu Fusion products

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Recent changes are in RED

## General Comments

There are several identifiers that are used in Yaesu's Fusion. The most useful are:

1. Model Number
2. EAN/JAN
3. Type
4. Serial Number
5. Transmitter Identifier
6. Board version
7. Software version

It is obvious that some of the information is incomplete, particularly in the area of lot and TYP numbers. Please let me know of any additions or corrections. Thanks!!

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## Model Number

The model number is the well-known identifier that we're accustomed to using when telling people what radio we have.

The Yaesu product line consists of the following.

Table 1 Yaesu Fusion Production Runs

Model	Description	Product Status	Production Dates
FT1D	Dual-band HT	Ended	4/13 - Summer 2015
FT1XD	Dual-band HT	Ended	Fall 2015 - Spring 2017
FT2D	Dual-band HT	Ended	7/15 - Fall 2020
FT3D	Dual-band HT	Ended	8/19 - 8/21
FT5D	Dual-band HT	Current	9/21 -
FT70D	Dual-band HT	Current	May 2017 -
FTM-100	Dual-band mobile	Ended	5/15 - 3/20
FTM-300	Dual-band mobile	Current	4/20 -
FTM-400DR	Dual-band mobile	Ended	10/13 - Summer 2015
FTM-400XDR <sup>1</sup>	Dual-band mobile	Current	Fall 2015 -
FTM-3200	2 meter	Ended	3/16 - Winter 2021
FTM-3207	70 cm	Ended	Fall 2017 - Winter 2021
FTM-7250	Dual-band entry	Ended	Spring 2018 - Winter 2021
FT-991	HF/VHF/UHF	Ended	Fall 2014 - 9/16
FT-991A	HF/VHF/UHF	Current	9/16 -
DR-1	Repeater	Ended <sup>2</sup>	11/13 - Summer 2015
DR-1X	Repeater	Ended	7/14 - 10/17
DR1XFR	Refurbished Repeater	Current	
DR-2X	Repeater	Current	9/17 -
HRI-200	WiRES-X interface	Current	Fall 2013 -

<sup>1</sup> The FTM-400XDR uses a higher performance GPS than the FTM-400DR.

<sup>2</sup> Approximately 100 DR-1s were deployed as part of Yaesu's Fusion Beta program.



## EAN/JAN

The EAN/JAN number is essentially the part number and is a kit of several components that typically include cables, microphone, etc. Yaesu are shown in the table below.

Table 2 Yaesu EAN/JAN Identifiers

Model	EAN/JAN
FT1DR	AH044M022
FT2DR	AH060M002
FT3DR	
FTM-400DR	AH034M003
FTM-100DR	AH048M003
DR-1	TBD
DR-1X	AH043U007
DR-2X	
FT1XDR	TBD
FTM-400XDR	TBD
FT-991	
FT-991A	TBD
HRI-200	AD006X001

## TYP

Type appears to indicate the configuration of the radio. Radios distributed in different regions might require a different TYP where things such as maximum power output, frequency coverage, operating voltage, and supplied accessories may vary. The table below lists the known TYPs.

Table 3 Yaesu Distribution TYP Codes

TYP	DIST
A2	USA
?	?



# Serial Number

The construction of the current Yaesu serial numbers is detailed in the table below.

**Table 4 Yaesu Modern Serial Number “Secret Decoder Ring”**

<b>Character(s) L-&gt;R</b>	<b>Meaning</b>	<b>Example</b>																								
1	Last digit of year of manufacturing	3 = 2013, 2003, or 1993 <sup>3</sup>																								
2	Month of manufacturing as follows: <table border="1" data-bbox="326 541 574 1329" style="margin-left: 20px;"> <tr><td>Jan</td><td>C</td></tr> <tr><td>Feb</td><td>D</td></tr> <tr><td>Mar</td><td>E</td></tr> <tr><td>Apr</td><td>F</td></tr> <tr><td>May</td><td>G</td></tr> <tr><td>June</td><td>H</td></tr> <tr><td>July</td><td>I</td></tr> <tr><td>Aug</td><td>J</td></tr> <tr><td>Sept</td><td>K</td></tr> <tr><td>Oct</td><td>L</td></tr> <tr><td>Nov</td><td>M</td></tr> <tr><td>Dec</td><td>N</td></tr> </table>	Jan	C	Feb	D	Mar	E	Apr	F	May	G	June	H	July	I	Aug	J	Sept	K	Oct	L	Nov	M	Dec	N	3M = November 2013
Jan	C																									
Feb	D																									
Mar	E																									
Apr	F																									
May	G																									
June	H																									
July	I																									
Aug	J																									
Sept	K																									
Oct	L																									
Nov	M																									
Dec	N																									
3-4	Number of manufacturing lot for that month	3M26 = 26th lot Nov 2013																								
5-8	Unit number of the lot	3M260112 = 112th unit in lot 26 manufactured in November 2013																								

<sup>3</sup> It's necessary to know the period over which the radio was manufactured to select the correct decade.

# Transmitter Identifier

Each Fusion transmitter has a unique identifier. This identifier is present in every digital transmission. It's used to know which radio transmitted - the programmed call sign is not used. This is how four radios, all programmed with K9EQ, can be separately tracked in the Fusion/WIRES-X system.

You can determine your transmitter ID by going to the Group Mode menu.

A transmitter ID consists of a Capital letter followed by a number. These first two characters can be used to identify the type of radio. The following characters can be alphanumeric with upper and lower case. The combination of 26+26+10 = 62 and three character positions allows for  $62^3 = 238,328$  identifiers for each model prefix.

The table below lists transmitter ID prefixes and the type of radio.

**Table 5 Fusion Transmitter Identifier Prefix Identification**

Prefix	Model	Notes
E0	FT1DR FT1XD	Original dual band, 1 ana/dig Rx, 1 ana Rx, GPS, APRS, CD-41 drop in
E5	FT2D	High end graphic display dual band, 2 ana/dig Rx, GPS, APRSCD-41 drop in
EA	FT3D	FT2 w/color and other features
EF	FT5D	FT3
F0	FTM-400DR FTM-400XDR	High end mobile color remote display, 1 ana/dig Rx, 1 ana Rx, GPS, APRS
F5	FTM-100DR	High end mobile monochrome display 1 ana/dig Rx, GPS, APRS
FA	FTM-300	High end mobile color display 2 ana/dig Rx, GPS, APRS
G0	FT-991 FT-991A	HF, V/UHF 1 ana/dig Rx. 991A adds a spectrum analyzer.
H0	FTM-3200	Low end monoband mobile, 1 Rx ana/dig.
HA	FTM-3207	As above except 70 cm
HF	FTM-7250	Low end dual band mobile
H5	FT70D	Low end HT, 1 Rx ana/dig.
R0	DR-1	Beta pre-release, 100 distributed
R0	DR-1X	Original dual-band ana/dig repeater

R5	DR-2X	Dual-band repeater w/optional LAN, dual Rx.
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Example IDs:

F00xy

E5AZG

F0jzW

R003M - W0MDT repeater<sup>4</sup>

Just to be clear, every radio has a unique ID that is transmitted with every digital transmission. You cannot change the ID or prevent it from being sent. So I'd suggest it's a very bad idea to steal a Fusion radio or to jam and irritate other users with it. The call sign programming has no effect on the transmitter ID.

## Lots

Yaesu uses the term "lots" to describe engineering changes (they would say "improvements", we might say "corrections") to their products. The lot numbers are assigned in pairs (I'm not sure why, possibly an indication of a PCB change or not).

For example, the FT-991 had 8 lot numbers. The first "lot" had problems with failure of the finals on both the HF and V/UHF power amplifiers. Lots 2 made significant changes on the HF side. Lot 8 made the most changes on both the HF and V/UHF sides and was the final "lot" for FT-991 production.

It is difficult to determine the lot number as Yaesu does not provide an indication of when the lot changes occur as a function of serial number.

If you examine the PCB board, or main board for the V/UHF radios, there are three small numbers on each side with each number in a square box. The numbers are on the silkscreen, solder mask, and upper PCB trace. The highest of these three numbers is likely the lot number for that PCB. In the case of the FT-991, the two power amplifier boards are probably most revealing.

The same DSP module is used in the repeater, FTM-1/400, and the FT-991(A) and similarly indicates its lot number.

A black stamp on the PCB indicates the version of the PCB.

Known versions are listed in the table below.

**Table 6 Lot Numbers**

<b>Model/Board</b>	<b>Version</b>	<b>Approx. Date</b>
FTM-400 Main	TBD	2013-2014
FTM-400 Main	TBD	2014
FTM-400 Main	7	2015

<sup>4</sup> The repeater will transmit its Tx identifier when the input is FM and output is digital.

## Battery Identification

Batteries are identified with a two, three or four character sequence such as 'EL', 'Q35', or 'L40C'. The two-character codes are used by batteries produced prior to Fusion radios. For the other codes:

The first character is the year, the second character is the week of the year, and the fourth character (if it is there), probably indicates the lot produced within the given week of the year.

**Table 7 Battery Identification**

<b>First Character</b>	<b>Year</b>
L	2012
M	2013
N	2014
O	2015
P	2016
Q	2017
R	2018
S	2019
T	2020

For example, a battery with a code of O45A was manufactured in 2015 during the week of November 1st.

# Software Versions

## Repeater

Yaesu's repeater version identification system is a little bit strange. It uses the format of:

N.MMA

where N is the numeric major version, MM is the numeric minor version, and A is the alpha sub-version. A is unusual in that it goes through the sequence of A, B, ..., Z, a, b, ..., z.

Some example version numbers are:

1.00Z

1.00m

1.10D

To make things even worse, there are incompatibilities between main/sub version numbers and the letter sequence. DR-1 repeaters with the 1.00 sequence of [A-Z], [a-z] cannot use the firmware for repeaters using the 1.10 sequence.

And to be totally inconsistent, the repeater versions are mostly for the main firmware component but they may (or may not) also correspond to certain DSP, panel, and Tx firmware versions which are numbered more conventionally (below). There are also firmware (or data) images within the repeater that are not individually identified except by the main component of the repeater's main firmware version number.

Argh!

## Radios

Fortunately the individual radios are not as bad as the repeater with their firmware components numbered more conventionally. However, there may be up to four different firmware versions used in a radio (FT-991).

Each software/firmware product has its own sequence. For example, the FTM-400 main processor, panel processor, and DSP will all have their own independent version numbers. The version numbers for different components are usually not the same with a particular radio or across radios. The one (so far) exception is the DSP where its version number is common across all Fusion radios.

Radio firmware uses the major.minor notation where a change in the major number indicates a significant feature change and the minor number indicates "improvements and optimizations"<sup>5</sup>.

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<sup>5</sup> This is a common phrase that Yaesu uses to address all bug fixes and performance improvements. Yaesu, like others, generally only itemize feature changes in their revision histories.

## Revision History

Table 8 Revision History

Revision	Date	Description
10	30-Aug-2021	Added FT5D, FT3D discontinued
9	18-May-2021	Updated status of low end radios. Corrected radio identification for FTM-3207, added FTM-300 and FTM-7250.
8	TBD	FTM-100 Discontinued, added battery identification
7	8-Aug-2019	Updated for FTM-3207, FT3DR, DR-2X
6	2-Oct-2017	Added termination date for DR-1X
5	21-Sep-2017	Added FTM-3200, FT70D, and DR-2X
4	TBD	Added FT-991A
3	27-Jun-2016	Added FTM-3200
2		Added XDR radios
1		Initial Release

## Disclaimer

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