



# RFID TRANSPONDER PLACEMENT / POWER GUIDELINES

**Zebra R110Xi HF**

Model Number: HXX-7XX-XXXXX

The purpose of this guideline is to define the optimal transponder placement within the media such that the media can completely printed without use of the programmable encode position command.

### Printer/ Encoder and Firmware

- Note that inlay placement within media may differ for each printer/ encoder model. The guidelines contained within this document are relevant only for the listed printer/ encoder(s).
- Guidelines are established using the latest firmware available for the printer/ encoder. Please ensure that the latest firmware is being utilized to get the optimum encoding performance. Firmware downloads may be found at [www.zebra.com](http://www.zebra.com).

### Transponder Orientation

- Inlay orientation is critical to ensure proper encoding.
- Transponder picture shown in guideline is how it must be inserted in into the media.
- Picture shows the transponder orientation as seen through the facestock and media feed direction down.

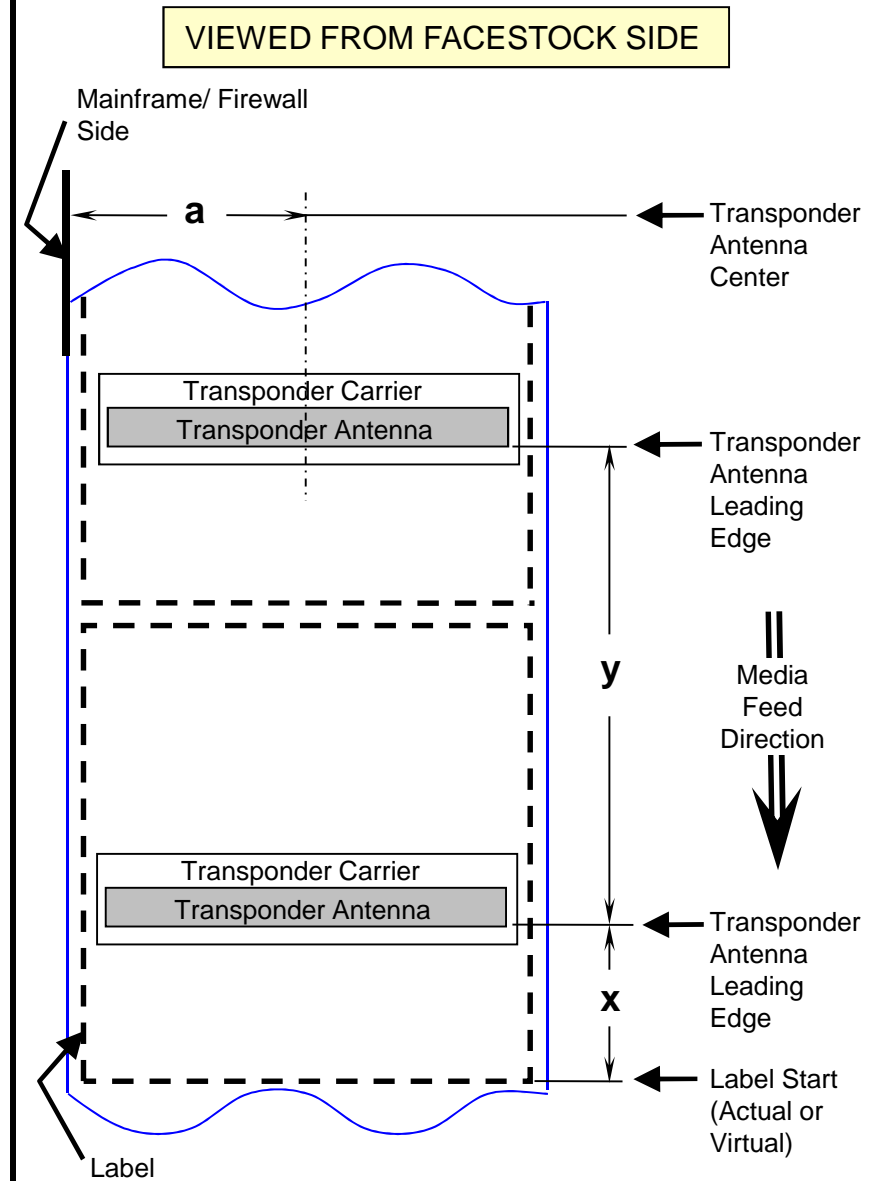
### Label Construction

- Zebra printer encoders are generally ran with a standard 1/8" gap between labels without a black mark
- If transponder placement guidelines to not allow for transponder to properly fit within the wanted label size, then a black mark may need to be introduced to create a "virtual" label to ensure proper encoding. This will usually also shift the label home position and therefore print formats may have to also be adjusted.
- The "Label Start" is defined by one of three different methods: 1) The physical leading edge of a label, 2) The leading edge of a black mark, or 3) The leading edge of a notch (Black mark and notch dimension requirements are outlined printer specifications).

### Transponder Antenna Placement Dimensions

- There are three dimensions that are critical in determining transponder placement as shown in the schematic to the right and as explained below

Dimension	Definition	Explanation
<b>a</b>	Printer Mainframe/ Firewall (or Liner Edge) to Transponder Antenna Center	Coupling with the transponder changes across the width of the printer and can cause x and y dimensions to vary. Please note that dimension is always to the antenna center, not the chip or transponder carrier. Dimension generally given with a +/- 3mm tolerance.
<b>x</b>	Label Start to Transponder Antenna Leading Edge	This dimension ensures coupling with the transponder in the current label to be printed without use of programmable encode position command. Please note that dimension is always to the antenna leading edge, not the chip or transponder carrier. Dimension generally given with a +/- 3mm tolerance.
<b>y</b>	Transponder Antenna Leading Edge to Transponder Antenna Leading Edge Pitch	This dimension ensures coupling with only the transponder in the current label. Please note that dimension is always to the antenna leading edge, not the chip or transponder carrier. Dimension generally given as a $\geq 3$ mm minimum distance.



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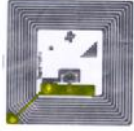
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Model Number: HXX-7XX-XXXXX

Guideline #	Revision Date	Protocol	Transponder				Transponder Placement (mm)				Printer/ Encoder Settings		
			Manufacturer	Manufacturer Part Number	Orientation		a		x	y	Tag Type	Antenna Port	RFID Power
					Option	Viewed through facestock/ Machine direction down	Option	(± 3mm)	(± 3mm)	(I)			
00001	09/18/2009	ISO 15 693	Texas Instruments	RI-I03-114A-01 Tag-it Standard Mini Rectangle	A		A	25	31	51	15693	1	LOW
00002	09/17/2009	ISO 15 693	Rafalac	15 x 15 3001060	A		A	13	27	51	15693	1	LOW
00003	09/17/2009	ISO 15 693	KSW	KSW-NN-H030- Isp-G	A		A	13	26	25	15693	1	LOW
00004	09/18/2009	ISO 15 693	Rafalac	45 x45mm 3000210	A		A	32	10	54	15693	1	LOW
00005	09/18/2009	ISO 15 693	Sirit/RSI	RSI-506	A		A	51	32	51	15693	1	MED
00006	09/18/2009	ISO 15 693	Texas Instruments	RI-I11-114A-01 Tag-It Standard Square 45x45	A		A	25	6	61	15693	1	LOW

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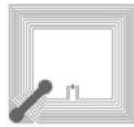
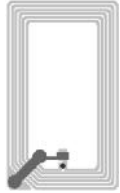


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					Option	Viewed through facestock/ Machine direction down	Option	(± 3mm)	(± 3mm)	( <i>i</i> )			
00007	09/18/2009	ISO 15 693	Texas Instruments	RI-I02-114A-01 Tag-It Standard 45x76	A		A	38	15	80	15693	1	LOW
00008	09/21/2009	ISO 15 693	Avery	AD-709	A		A	25	15	38	15693	1	LOW
00009	09/21/2009	ISO 15 693	Avery	AD-714	A		A	25	8	45	15693	1	LOW
00010	09/21/2009	ISO 15 693	Avery	AD-720	A		A	25	12	61	15693	1	LOW
00011	11/20/2009	ISO 15 693	Raflatac	50 x50mm 3001261	A		A	29	5	56	15693	1	LOW

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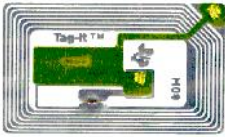



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Model Number: HXX-7XX-XXXXX

Guideline #	Revision Date	Protocol	Transponder				Transponder Placement (mm)				Printer/ Encoder Settings		
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					Option	Viewed through facestock/ Machine direction down	Option	(± 3mm)	(± 3mm)	( <i>i</i> )			
0012	1/22/2010	Mifare UL	Raflatac	Racetrack MiFare UL	A		A	36	10	51	14443A	2	Low
0013	1/26/2010	ISO 15 693	Texas Instruments	RI-I03-112A-03 Tag-it Standard Mini Rectangle	A		A	25	31	51	15693	1	Low
0014	3/1/10	MiFareUL	Raflatac	3001620 18 x 18 mm ISO 14 443 A Mifare UL (17pF)	A		A	25	38	22	14443A	2	Low
0015	3/16/10	ISO 15 693	Raflatac	300101 I-Code SLI 14 x 31 mm	A	 OR 	A	13	19	42	15693	2	Low
							B	38	19	42	15693	2	Low

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			Manufacturer	Manufacturer Part Number	Orientation		a		x	y	Tag Type	Antenna Port	RFID Power
					Option	Viewed through facestock/ Machine direction down	Option	(± 3mm)	(± 3mm)	(I)			
0016	4/7/2010	ISO 15 693	Avery	AD-730 AD-730x	A		A	25	22	54	15693	1	Low
0017	5/3/2010	ISO 15 693	Raflatac	3001457 43 x 43mm	A		A	25	15	48	15693	1	Low
0018	8/23/2010	ISO 15 693	TI	RI-I16-112A-03	A		A	25	37	50	15693	1	Low
0018	2/03/2011	ISO 15 693	TI	RI-I16-114A-S1	A		A	25	17	52	15693	1	Low
0019	7/19/2011	ISO 15 693	TI	RI-I11-114B-01	A		A	25	4	63	15693	1	Low
0020	1/13/2012	ISO 15 693	Raflatac	3001423 BullsEye	A		A	25	12	54	15693	1	Low

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					Option	Viewed through facestock/ Machine direction down	Option	(± 3mm)	(± 3mm)	(I)			
0021	9/26/2012	ISO 14 443 A	Smartrac	3002222 Circus	A		A	13	21	48	14443A	2	HIGH
0022	9/26/2012	ISO 14 443	Smartrac	3002225 MiniTrack	A		A	13	23	42	14443A	2	HIGH
0023	9/28/2012	ISO 14 443	Smartrac	3002221 MiniTrack	A		A	25	24	52	14443A	2	HIGH
0024	10/05/2012	ISO 14 443	Smartrac	3002221 MiniTrack	A		A	25	24	42	14443A	2	LOW
0025	8/29/2014	ISO 15 693	Smartrac	3002974 MiniBlock	A		A	13	26	50	15693	1	LOW
0026	12/22/14	ISO 15 693	Smartrac	3001922 RaceTrack	A		A	26	4	90-	15693	2	LOW

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