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		Thread Tools Search Thread Rate This Thread Display
20-10-2010, 09:09		#1
matherpSenior MemberJoin Date:Jan 1970Location:Cambridge, UKPosts:430	Mini 2.4Ghz Wireless N Anyone played with these relatively easy to interface http://tinyurl.com/32kz86v Best regards	NRF24L01 Transceiver Module e yet? Seems like a good low cost option that handles all the error correction and should be ce with.
	Peter	
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20-10-2010, 09:43		#2
Dippy • Moderator Join Date: Jan 1970	No, I haven't. Looks good	d value. And looks quite easy to use.

0/2016	Winit 2.4Ghz Wireless NRF24L01 Transceiver Module	
Location: UK Posts: 10,423	But let me be blunt; unless you've had some experience with these types of things they are often NOT plug'n'prod. Have a good read of the Data Sheet. I haven't got time to investigate in detail but may I suggest you go to the Nordic site and see if you can get an App Note and example software apps. All I'm saying is investigate before buying something with a 7 day warranty. If you aren't experienced then you may need a lot of time-consuming handholding 😒 Slight aside: When I first looked at TI's CC1101 I thought Mmm that's easy 400 lines of code later I had changed my mind - though I have to say it's an excellent device and makes XBee look a bit feeble. I admit that the more I look at this Nordic thing the easier it looks - and I wish I'd seen it before, damm! 🥥	
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20-10-2010, 10:38	#3	
manuka • Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	It's the first time I've seen those nRF24L01+ ones as well, & their price looks tempting as Sparkfun sell similar for ~US\$20. I agree with Dippy that such darlings are often a right pain to drive however, & also point out that 2.4 GHz ranges may be seriously limited by obstacles. As we're in a global village- these are Chinese made -why not order a few & let us know your experiences? Stan.	
	Last edited by manuka; 20-10-2010 at 10:42.	
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20-10-2010, 10:50	#4	
PauldesignSenior MemberJoin Date:Dec 2009Location:Cape TownPosts:413	Ebay Solution, what are the chances of it still being alive!!! Buying an E-component of that magnitude on ebay/gumtree for a new/prototype design?	

Well, if you don't mind the frustrations and your money esp if it's not working, then give it a shot. 🤶

After all there is no good success without sacrifices of some sort. 🥥

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20-10-2010, 11:19	#5
manuka o Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	PaulDesign: ??? EBay has some 400 million registered users, with most of them apparently pretty satisfied !
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20-10-2010, 12:27	#6
Dippy • Moderator Join Date: Jan 1970 Location: UK Posts: 10,423	Apart from the 200 million who have 2 usernames to give themselves good reviews Anyway, matherp, have you ordered a couple yet? No? Get three just in case you get a duffer or break one. In my clumsiness I managed to pop 3 MRF24Js due to cack-handedness.
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20-10-2010, 18:06	#7
matherp Senior Member Join Date: Jan 1970 Location: Cambridge, UK Posts: 430	Hi Dippy I've ordered 4 on the basis that if all goes well I have two links and otherwise I've got a couple of spares :-) I'll report back when I've received them and got something working best regards Peter
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20-10-2010, 20:41	#8
manukaSenior MemberJoin Date:Jan 1970Location:Wellington,NZ.Posts:4,322	Matherp: Your feedback eagerly awaited- where are you based? A further 2.4GHz issue often relates to the increased bandwidth available, as data speeds far beyond most PICAXEs can then be the norm for that device-it can be a config. pain to throttle the transceiver back!
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20-10-2010, 23:25	#9
ciseco • Senior Member Join Date : Jan 2008 Posts : 480	 mmmm, 81 sold, cool, makes me feel more confident in commiting to our design I'd like opinions the module we've done is using a similar chip to what dippy mentions TI CC series. It's xbee shaped (drop in replacement for many applications), does straight serial like the xbee and takes care of crc/packetsation etc so you simply send/recieve serial comms. Unlike xbee it runs at 868mhz, is about half the power consumption but achieves about 3 times the distance and is under half the cost of xbee. My question, do you think these would be at all popular? Miles sativa strains
	Denke Denke Vitte Onete
Biog this Post	Reply Reply With Quote
21-10-2010, 08:21	#10
Jeremy Leach •	

Senior Member Join Date:

Jan 1970 Location: Shropshire, UK Posts: 2,263

Remember you need to get some sort of approval for including your module into other products. Well I'm no expert but I think so.

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21-10-2010, 09:40		#11
manuka • Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	Ciseco: Are you now talking about this 2 If it's the latter then can you please supp The 2.4 GHz ISM band is of course so cr thru' the clutter. That elevated frequency RF wise,& propagation should indeed be	2.4 GHz Ebay offering, or your own drop in 868 MHz "XBee alternative" chip? ply details, as you've now got me interested. owded that it's an increasing wonder that wireless devices are able to cut y naturally has LOS limitations as well. In contrast sub GHz is pretty quiet enhanced. Stan.
Blog this Post	Last edited by manuka; 21-10-2010 at 10:16.	Reply Reply With Quote
21-10-2010, 09:47 hippy • Technical Support		#12

Join Date:Jan 1970Location:UKPosts:22,443	Originally Posted by ciseco My question, do you think these would be at all popular?
	Perhaps the deciding factor is their cost, how flexible and useful they are, how easy they are to use and configure, how good your documentation and what your sales pitch and target market is. For PICAXE use, how compatible is it with the way PICAXE works; can it pace data for relatively slow SERIN and hold data until the PICAXE is ready for the data or does it need high-speed background serial receive ? I would guess any user wanting to embark on wireless will have a list of possibilities in front of them; want to start cheap in case it doesn't work or isn't for them, will pay more when they understand the advantages and capabilities that brings, but will often baulk at the complexity of more advanced solutions. Experienced users will be looking for particular capabilities. With a list of product, price, pro's and con's it's a question of how the potential user ranks them and where you can get them to position your product. Criteria for ranking will depend on the user and target market.
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21-10-2010, 14:43	#13
John WestSenior MemberJoin Date:Jan 2010Location:Colorado USAPosts:1,727	Manuka: 868 MHz may be quieter where you are but it's still going to be LOS - albeit with a somewhat different reflection pattern. But the "quieter" bit can make all the difference. I'm interested as well.
Blog this Post	Reply Reply With Quote
21-10-2010, 15:26	#14
Dippy • Moderator Join Date: Jan 1970 Location: UK Posts: 10,423	 Can you define your LOS for us please? I did an 868/915 XBee-alike and it's brick wall penetration was really impressive. My design had an auto reply function to make Site surveys easier. I arranged the error checking so that the 'Host' end could determine whether errors were more likely in one direction than the other. Stan would be proud of me For my testing there was no line of site.

Using wire from the drawer as antennas I was getting a 99% reliable range of around 45m node-to-node with 3

	brick walls and a hedge in the way (64kbs at 868MHz with Johanson balun and wirewound inductors). Total PCB size < XBee. This integrated balun simplifies design/cost but reduces performance slightly compared to all-discrete.
	For anyone tempted to dabble, it should be noted that with the CC1101 the output power options are related to component spec. AND, the output component selection, design and layout have a huge effect on whether it will comply with ETSI (or FCC at 915).
	From the firmware perspective the important thing for me would be that the user has access to the configs so that control is available to the user, including: fine tuning, power adjustment, channel selection and control over packetising too. AND that it should be easy to understand and activate. As Stan-the-Scan will know, getting the frequency matching is important and these chips usually need setting up
	For my tests I used YELLOW wire for the antenna, though I believe PURPLE is better as that is what Microchip use on their MRF49 demo boards. I'm just joking by the way
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21-10-2010, 20:29	#15
manuka • Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	Dippy: Yellow & purple -bah! It's my experiences that RF has better take off using sky blue insulation on the antenna wire, as this harmonises with the chi of the aether.

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#16

21-10-2	010, 20:33	i	#16
BeanieBo	ots o		
Moderator			
Join Date:	Jan 1970	Oh lordy, they've BOTH been on the Pink Gin	
Location:	UK South Coast		
Posts:	8,844		

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21-10-2010, 20:44				#17
Dippy • Moderator Join Date: Jan 1970 Location: UK Posts: 10,423	 If you treble-click my previous post a Magic Message appears at the end. Well , I won't disagree with Stan er-ee-al go mad. (Aerial = or 'e 'II = or he will). This level of humour is antennable (untenable) I think I'll stick to selling ice-cream. 			
Blog this Post		Reply	Reply With Quote	
21-10-2010, 20:50				#18
BeanieBots • Moderator Join Date: Jan 1970 Location: UK South Coast Posts: 8,844	Criginally Posted by Dippy			

No, sell the other 'stuff'. You've clearly got too much of it. Keep the ice-cream.

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22-10-2010, 04:27	#19
ciseco • Senior Member Join Date: Jan 2008 Posts: 480	The dipster gave us the inspiration with his test of the TI CC1101 (transciever), I just wanted it smaller and cheaper so
	It's based on the TI CC1110 which is a single 6mm sq chip. In this package is an 8051 micro, 128 bit AES encryption engine and the same CC1101-315/433/868/900MHz transciever. We (not me ⁽⁾) wrote the software from the ground up to emulate the best bits of xbee and forget the rest of the stuff no one ever uses and add some of our own functions. One of which we are discussing is over the air picaxe programming as we leave 16kb aside for the XRF firmware

updates already. We just need to scope the way the axe downloads. Don't rush in this is a distinct "maybe", as we have direct control of every bit and byte we should be able to get it to do almost anything (including impersonating a PC doing a download).

At the moment it's running at 868 as thats relativly peaceful in comparison to 2.4 and 433. It just requires a different cap/inductor network for different frequencies so the same code would run at any frequency 315/433/900.

It's data rate is 250k over the air and we buffer down to 2400-115K serial (software settable).

Distance tested so far on no more than a qtr length whip, module to module was over 360m in a field. Also there's pads for an SMA connector, using appropriate antennas I bet a K or 2 might be possible (need to stay within local RF limits!). TI quote 1K for thier tuned reference which has a PCB trace antenna but a ground plane thats huge. We are within about 2db of thiers with a ground plane about a 6th of the size, so we are delighted with the results so far.

They should retail at ?9.90 + VAT

Current consumption quoted is 18.9ma RX and 16ma TX, we havent measured ths accurately yet, but know this to be "at the lowest data rate and power output". We think it's more like 22 RX and 32 TX at +10db when run flat out. You will be able to change power outputs via AT commands, to tweak it a bit.

Theres an optional PANID so 65K separate networks "could" be individually available, ID of 00 is broadcast to allow joining etc or just out the box plug and play. You can send a message from an axe in just a couple of lines of code. Default is 9600bps so to use the baby axes you'll need to throw an AT command at them via a PC and hyperterminal (or similar) to set the baud rate to something lower (like 2400)

Jeremy is right in one sense, these things "should" when deployed in a final product be approved, this is true of the xbee and every other module (they don't tell you that). This is if you like a development board akin to the MRF modules from microchip, anyone can buy them and anyone can seek ETSI/FCC approval of the overall design. Getting approval for a componant is rather pointless and mere marketing in my opinion. There are plenty of approved finished products based on the same TI reference. We will fully comply with all ETSI regulations, 868 being more european, then look at FCC etc and always keep to the guidelines for locality.

We will probably release the source openly, once some momentum has been reached, the RF design follows very closely the TI reference. We have already built a standalone device on it, there's an onboard temp sensor (measures die temp not ambient). On a coin cell at once a minute transmits, I seem to remember it "should" last something like 3-4 years. The sleep consumption was below the natural decay of the cell.

It'll be the basis of a pile of aProtocol sensors, this is why we have just released the XINO which is a PIC/AXE on an arduino shaped board. You can "build" (stack) a wireless sensor in less than 30 seconds and cut and paste code to give you a fully functional device in less than 60 seconds. aP has been ported to PC/CE/Arduino/ARM/and 3 flavours of PIC basic so far (PICAXE being 1). There's some talk of the soldercore supporting it nativly. We are planning 60+ devices, your PICAXE will be able to talk to any of them.

For anyone wishing to use it as a bog	standard serial	replacement,	the ap	tweaks car	n be ignored,	this i	s how i	it
works out the wrapper.								

It's been a hard 4 years, I owe so much to this forum, it's where I started this microcontroller adventure. I still whip out my x1's in preference to almost anything else. I then transfer anything marketable to a compiler to keep costs down. Another reason why we did a cross compatible PICAXE and PIC board.

Having read so many posts on.... the xbee is too costly, it's too complex. To, try those cheap data modules but you'll need to do you own crc's etc. I think at the moment this is the best compromise out there, it's simple, very fast, range is good and cost wise it's affordable. When the quantities go up the price will come down, we are looking to the ?5 mark, we will need to be building in 100,000's though, so that day is a long way off.

Oh there's also an XBee shaped serial converter (MAX232), and LIN and IR modules comming. You'll be able to interchange XBee,XRF,X232,XIR and XLIN modules without changing a single line of code.

It must be time for bed.

Signing off with a yawn

Miles

volcano classic

Last edited by ciseco; 31-01-2011 at 00:45.

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22-10-2010, 06:42	#20
manuka • Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	Milkes- 4 years! I'm (no doubt like everyone else) seriously impressed, but who/what/where/when/why questions abound. What is the quoted receiver sensitivity for starters? Stan.
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22-10-2010, 09:32		#21
hippy • Technical Support Join Date: Jan 1970 Location: UK Posts: 22,443	Originally Posted by ciseco Jeremy is right in one sense, the and every other module (they of microchip, anyone can buy the componant is rather pointless a the same TI reference. We will always keep to the guidelines for Most hobbyists won't seek product to be legal etc on the grounds not What I think was being asked is, Authority arrives and claims it's to happen but such things will get	I lese things "should" when deployed in a final product be approved, this is true of the xbee lon't tell you that). This is if you like a development board akin to the MRF modules from n and anyone can seek ETSI/FCC approval of the overall design. Getting approval for a ind mere marketing in my opinion. There are plenty of approved finished products based on I fully comply with all ETSI regulations, 868 being more european, then look at FCC etc and or locality. Ict approval, but rely upon the module or sub-assembly used having been certified othing they will have done has changed the way the module operates. will these have CE and approval certification etc, so when the man from the Radio 'illegal radio' certificates can be whipped-out to show 'it's legal'. Not that it's likely et noted by others and lack of that may put buyers off.
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22-10-2010, 15:04	#22
ciseco o	
Senior Member Join Date: Jan 2008 Posts: 480	Stan it's quoted at -110db, there's a basic table of specs and a link to the main datasheet here http://focus.ti.com/docs/prod/foldercc1110f32.html
	It's a bit of a read (247 pages) and there some errata dotted around the place too.
	Hippy is right to be cautious, I do however feel the "put people off" statement is a little off putting itself and it's in need of a tweak to be balanced statement. Maybe I wasn't clear enough, it was 4am
	Buying a premade FCC/ETSI tested module, unless you are using it in the <i>exact</i> same way as when they tested it, your project wouldn't "automatically" pass any kind of regs, the "whole" device needs testing.
	Let's look at something this forum promotes, the use of micros. For example, having a PIC on a board with an XTAL is an immediate EMC check. Wiring your own transformer rather than using a pre CE'd PSU or batteries takes you into LVD/CE.
	We <i>could</i> spend 7 to ?10K getting some sort of CE/ETSI/FCC certificate, but it's totally worthless to the end user as soon as they make it a "componant part" of a wider system. The whole system is the issue not the part. The cost would also have to be bourne by the end user. As it offers them nothing, we don't do it, the same as TI, Microchip, Nordic and a raft of other manufacturers.
	Lets be clear, it's not illegal, the device is configured to adhere to all standards and " would " pass testing if required (at the users expense). I have a device on my desk called the IM-ME made by mattel toys that uses the exact same reference design as us, it's FCC marked (strangly no CE though).
	My comments are in no way saying Hippy is wrong, it's just a few uncarefully chosen words could mislead very easily. Conforming to the radio regs is far different to having a certificate for a finished product. Simply by grounding an XBee you are changing it's RF parameters by adding to the ground plane, this simple act means recertifiaction.
	I hope this explains in much greater detail, what, who and when certification is needed.
	Hippy what are your thoughts on price, range, ease of use etc?
	Miles
	Mercedes-Benz W126 specifications

	Last edited by ciseco; 31-01-2011 at 00:45.
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22-10-2010, 15:58	#23
hippy • Technical Support Join Date: Jan 1970 Location: UK Posts: 22,443	No intent to put people off, more just acknowledging that some perhaps could be. No matter how meaningless in reality (like a car MoT which is really only a statement of fact at the time of testing), having an MoT / CE sticker makes it seem 'better' than without. It's a step up from "would pass an MoT". Not a problem if selling to professionals who do understand fully (I completely understand and accept what you are sayng). Probably not a problem anyway as certification seems further down lists than price and usability for most.
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22-10-2010, 17:21	#24
ciseco • Senior Member Join Date: Jan 2008 Posts: 480	 I see your point but feel differently. To me an MOT means it (as a system) was safe at that point in time as "a car" (which unless you add a caravan/trailor is a one time object). I could go and buy a "CE certified" wheel from a motor cycle shop and weld it on the car instead of a normal wheel, that would be highly suspect, probably illegal and certainly very dangerous. The fact the cycle wheel is certified, as is the car, it's when I combine the two things change. It's the same sort of situation. A daft story, I admit but I was trying to incorporate cars and MOT's ⁽²⁾ I think a better one, is bricks and buildings. Bricks are certified to some standard or other, this almost means nothing on it's own. When you lay them to form a building, then the man from building control wants to see what you did with those bricks and passes the building as a whole entity. I see that as a closer analogy. The "brick" in this case is the TI CC series radio which has been around for 3-4 years and has sold in the 10's of millions into FCC/ETSI approved systems.

Conforming to radio regulations is **very** important, we both must agree, and suspect we do agree, having an FCC licence for "a componant" means nothing.

I agree totally with you, "seems" better than without, but in this case seeming and reality aren't the same thing

I'm just trying to make sure people know th	he truth.
---	-----------

Onto more interesting stuff, you have a really good point about the pin spacing, always been a bug bear of mine too.

We are thinking of a 2.54 mm spaced one, but then it needs on- board regulators and level conversion to/from 5v to be "user proof". It might be cheaper all round if we did a pcb converter instead, this could have larger componants on and be hand made. To get the price this low, plenty have to be made. We can't afford 2 designs just yet, as the XRF has 0403 sized parts it's a machine made item only, so thats MOQ's in the 1000's.

Target market is aP devices for hobbyists and straight serial for hobbyists (Arduino, PIC, ARM etc) with this module. We do however have irons in fires to "design in" the CC into consumer devices. We have 4 ongoing projects to put these into everyday household devices, one customer is arguably the largest company in the world. If we pull that one off expect the module price to drop by about ?3-4 over night ⁽⁹⁾/₍₂₎ All fingers are crossed, I doubt we stand a 50/50 chance but you never know.

Miles

teen videos

Last edited by ciseco; 31-01-2011 at 00:46.

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#25 22-10-2010, 18:34 hippy • **Technical Support** I'll agree with your brick analogy; it was how I was meaning and better than MoT. Join Date: Jan 1970 UK Location: If in B&Q and there are two bricks, look the same, same price, one has a 'certified' sticker one doesn't; which Posts: 22,443 would most members of the public buy? If there's a price differential it gets more complicated in guessing what happens. I'm not at all saying you are wrong - you're absolutely right - just expressing how other people may see things. You can counter as you eloquently have but there will be "it's not got a sticker, I'd buy that one that has" influences from others who may not understand things guite so well. I would guess that's why other players do spend the money on certification, which as you say gives very little in terms of the final product. You, I and they know it's largely meaningless, but there has to be a reason they'd 'waste money' on that. I would

	say it's to influence purchasers. Does it work ? Does it lead to buyer expectations which aren't really warranted, detract from those who won't play their game ? Hard to say but look how Memory Effect of NiCd batteries got used as a means of boosting NiMh sales.
	Last edited by hippy; 22-10-2010 at 18:36.
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22-10-2010, 20:27	#26
Dippy • Moderator Join Date : Jan 1970 Location : UK Posts : 10,423	 It's a tricky one wrt Approval isn't it. CISECO is right that a final product should have Approval. The CE mark is required on all products within the scope of New Approach directives that are placed on the UK market. And the Manufacturer would have to prove that it conforms to the R&TTE Directive. i.e. expensive testing from people like this:- http://www.rfi-global.com/17-radio-performance.html. But how about an RF Module? I honestly don't know. Is it a 'component' or 'sub-assembly'? Does it <i>become</i> a 'component' once shoved into a shielding tin can like XBee? A quick scout around at top brands e.g. Radiometrix and RF Solutions show their modules DO have certification of one form or another. And Microchip have certification on their MRF24J modules. Bless 'em 📀 Certainly the R&TTE Directive is unclear as to whether it applies only to final product or to sub-assemblies as well. I think you can avoid it if you are distributing 'Evaluation' products in limited numbers. And we have to be a little careful with specs. A manufacturer of a Radio Frequency chip will give a spec (e.g. sensitivity) in their Data Sheet based on their measurements on their Reference Design circuit board using their specification of components. Obviously, any deviation by a module manufacturer from that reference design will obviously also deviate from the Data Sheet spec.

	 For example, the I.C. Manufacturer may have used w/w inductors in their ref design, the Module manufacturer may have used chip inductors to save costs. Or, using an integrated Balun instead of discretes (to save space/cost) will also affect Tx and Rx performance. No Tx filtering could lead to over-the-limit harmonics. Slight changes to Module PCB size/layout versus Ref Design, will affect performance. So, stating module spec as per chip data sheet requires confidence. But if the PCB design and component type/layout is identical to the chip Manufacturer's Reference Design you should be nearly there Ultimately only independent testing is the only way - but what a cost. As a Thought Exercise, I'm in two minds. On the one hand the RF module could be the BEST performer in the world - only to be ruined by poor integration. On the other hand if the module is sub-standard to start with, then the Final product could never reach the required standard. Logical Solution: Test both situations. But that is rather expensive . If I was really worried about it I'd contact OFCOM (in UK). But the bottom line is; if it's cheap enough no hobbyist will give a stuff. We're in the Ebay world so good luck.
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22.10.2010.21.22	#27
Jeremy Leach •	
Senior Member	

Join Date:Jan 1970Location:Shropshire, UKPosts:2,263

On the other hand if the module is sub-standard to start with, then the Final product could never reach the required standard

I've no particular bias here as it's a difficult area, although I feel that approval at the module level would give reassurance that approval at the product level was at least possible.

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Quote

#28

22-10-2010, 23:56

manuka n

Senior Member

Jan 2008

480

Join Date:

Posts:

manana -		
Senior Member Join Date: Jan 1970 Location: Wellington,NZ. Posts: 4,322	Mentioning that "the 868 MHz region is relatively peaceful" raises the point that this sub GHz band slot has considerable, & increasing, potential. Here in NZ anyway cordless & cellular phones etc that once used 900 MHz seem to have moved to 1.8GHz - 2.4GHz, leaving that band seemingly relatively empty. Compared with 433MHz, "900 MHz" offers higher Tx powers, more bandwidth, quieter band conditions (meaning superior weak signal reception) and more compact high gain antenna- yet signal punch thru' obstacles is still impressive. Many off the shelf scanners cover that frequency too, greatly easing the sort of Tx/RX/antenna/sigr ID tweaking that can be frustrating at noisy 2.4 GHz. Global allowances vary (see attached) but all seem quite generous, & even suit spread spectrum. It's not a spectrum slot I've put much R&D time into,but a quick Google shows the likes of ChipCon's CC1101,and even HopeRF offer a well thought of SiLabs based RFM22/23 at ~US\$10. Features & config. of these modules however may tend to overwhelm-thoughts anyone? Stan. It's not a spectrum. It's not a spectrum slot I've put much R&D time into,but a quick Google shows the likes of ChipCon's CC1101,and even HopeRF offer a well thought of SiLabs based RFM22/23 at ~US\$10. Features & config. of these modules however may tend to overwhelm-thoughts anyone? Stan. It's not a spectrum. It's not a spectrum. It's not a spectrum slot I've put much R&D time into,but a quick Google shows the likes of ChipCon's CC1101,and the second showever may tend to overwhelm-thoughts anyone? Stan. It's tached Thumbnails Ito I = Inton I = Into I = Into I = Into I = Into I = I	all nal
	Last earted by manuka; 23-10-2010 at 00:45.	
Blog this Post	Reply Reply With Quote	
23-10-2010, 00:50		#29
ciseco o		

the XBee, for example Braun's wireless tooth brush, KNX deployments or that girlie IM-ME, so it's not only possible, it's already out there on sale today, we've just added serial comms.

Dippy's prototypes could potentially cost less than even ours, might have to go compiled, but a PIC is more than man enough for driving the standalone transceiver.

We should by the end of things have an XRF for 315 one for 433 one for 868 and one for 900+. All coded within the local regulations. This is a long way off, to start we are sticking to a 10% duty cycle within 868 as this suits more places than not.

Can I ask why the same questions were not asked with the sure electronics nordic ebay units first mentioned in this thread? The position is the same. I really feel under pressure now to justify TI's parts which surely I shouldn?t need to (we don?t make them after all). Surely our software implementation and the way it works is of greater interest to us hobbyists, perhaps I'm wrong.

So far the positives seem to have got less attention than this perceived topic of conversation. We thought a highly asymmetric, low power, high speed, easy to use device was what people were looking for. Thankfully stan's questions make me feel more positive about the human condition.

There's no dark art to all this, it's simply laid out in ETSI/FCC regs that x band you are allowed to do y and z, as long as you stick to what is being asked I fail to see why anyone could legitimately have any cause for concern, it is an ISM band after all (essentially a free for all, within limits). You could of course write your own CC code to run at 100% in certain bands of 868 with high gain antennas and flaunt the entire regulations in every way. We dont fortunatly allow this to happen in our firmware.

I?ve unfortunately too much experience with the RA on ISM bands on a previous project. Trust me, a hobbyist with kit running in an ISM band is of no interest unless you start to take income off an incumbent like BT. That video sender bought from wilko's is going to annoy your neighbours much more than a serial radio module passing a few bytes around

Perhaps we could get away from this now? Can we move onto what people would like to see instead, stuff like over the air picaxe programming, wake on receive, serial speeds, buffering, packet sizes, network segregation, sleep states and all that good stuff.

Miles

Mercedes-Benz W196 picture

Last edited by ciseco; 31-01-2011 at 00:46.

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23-10-2010, 01:36	#
hippy •Technical SuportJoin Date:Jan 1970Location:UKPosts:22,443	Can I ask why the same questions were not asked with the sure electronics nordic ebay units first mentioned in this thread? The position is the same.
	I think that's the difference between "I'm considering buying something which I know may be tat and I might wast a quid or two" and "I'm looking to go into business producing these". Look at Post #4 and you can't really say the idea got a clean run.
	I really feel under pressure now to justify TI's parts which surely I shouldn't need to
	I don't think you do, nor was that the intent. It was more how do your products stack up against what other products are on the market. You could buy cornflakes from the same place as Kellog's do, say you're going to put them in a box and flog them
	against each other. No one's judging the quality of what's in the box. It's more a marketing and positioning issue rather than a quality issue. I'm sorry if anything I said has offended as that wasn't intended, it was just a 'one thing to think about is' type comment. Only your market research and assessment of that can really determine the answers to your questions
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	Thread Tools Search Thread Rate This Thread Display	,
23-10-2010, 01:38	#	31
Senior Member Join Date: Jan 2008 Posts: 480	 Stan, you make some good points. Chip con were bought by TI some time back, ours is essentially a CC1101 on the same die as an 8051 micro running at 26Mhz with 32Kb (more bhp than most AXE's), hence the serial buffering an everything else to make life simple for the hobbyist. The hope RFM (we have some), the original CC1101 (we have some) and many others we haven't tried (eg nordic) are SPI only and way beyond the average picaxe, beginners and kids would faint. Dippy can tell you how much ha tear time was need to get a PIC to chat to the CC1101, I see from a different post why I only ever got one microchip MRF (bought those too) back not be composed in the way. I'm told a real pain in the wotsit. It was assigned to the bin after a couple of weeks of swearing and no real assistance from MC. There's no good reason why for example a hope RFM or MRF wouldn't talk to an XRF for example. It's just hope do do an integrated micro with one, TI are pushing things on I guess, they have the cash and the will. Microchip still dont have a single SOC device, crazy, I suspect that MRF will die sooner than a school gerbil brought home for the summer holiday not be floor is your about errata and lies in MC's data sheets to a the best we can find at the moment, if anyhing else comes along, we might consider another "drop in" 	ne ⊧d ir ≥d nt

Location:

Posts:

UK

10,423

/2016	Mini 2.4Gnz Wireless NRF24L01 Transceiver Module - Page 4
	replacement. The TI ant modules look like they might get a whirl at some point.
	Miles
	synthetic weed
	Last edited by ciseco; 31-01-2011 at 00:47.
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23-10-2010, 02:40	#32
Ibenson • Senior Member Join Date: Jan 1970 Location: Nova Scotia, Canada Posts: 2,284	 Talk about the CC device did sort of hijack the thread started about the Nordic module. I for one am glad of it, because I learned about two interesting new RF devices, not just one. I've ordered 4 of the Nordicsthe price is right down there into skinflint range. It will be interesting to see what it takes to make them work with a picaxe. I wouldn't claim to bring Dippy's rigor to the process. I wouldn't take the "certification" caveats as too discouraging, though I can see why seeing them first instead of "oh, wow" might be annoying. My own reaction is "oh, wow", so please take that as a vote of confidence that you are going in a good direction. Over-the-air picaxe programming sounds quite sexy (to a geek, at least), though I'm not certain how much use the average hobbyist would have for it. But low-cost, reliable, easy RF send and receive is a very desirable thing. Kudos for working it out.
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23-10-2010, 11:03	#33
Dippy •	
Moderator Join Date: Jan 1970	Hobbyist = Good'nuff + cheap Pro = Good'nuff +cheaper +vaguely legal.

ChCh = Vaguely OK + cheapest + who cares.

Going back to the start, yes that Nordic based device looks nice.

A quick scan of DS suggests it'll be a darned site easier than TI's little chippies.

As Stan can confirm, with any basic device you have to watch out for calibration. With any CC1101 design EACH device would have to be frequency calibrated.

22,443

Posts:

This process can be automated with a coded calibration routine, but I suspect some of the low cost ones will involve some DIY to get it spot on.

And whilst I followed the TI reference PC design as closely as possible I couldn't claim the Data Sheet figures for specification. Pretty darned close I'd say, but only expensive testing would confirm that - and I bet that NONE of the super-cheap Ebay offerings have seen an RF Anechoic chamber.

The Nordic looks **MUCH** easier, but , just to put newbies off, here is a drop of Intialisation code for a CC1101.

If you wearing an anorak, the code length is around 3000 lines (inlcuding my shopping list) = \sim 17Kb compiled.

	Cada	
	// Set Carrier Fq based on Channel Number // Registers: FREQ2 FREQ1 FREQ0 Sub SetChannelF(pChannel As Byte) ErrorNo = 0 If pChannel > 21 Then ErrorNo = InvalidChannel Else FreqVal = KB68(pChannel) // Transfer to 32 bit Global variable SPIVFiteByte(FREQ2, FreqVal. byte2, true)	•
	I only mention all this as I have seen people mention similar cheap little integrated on this Forum before. Sac they haven't got past PAGE1 of the data sheet and have no idea the work (potentially) required to get them get It is NOT a 5 minute job. All the coding and hardware took me well over a month and that was with quite a loc detailed help from TI techies. And now it's in the back of my drawer	ily, bing. bit of
Blog this Post	Reply Reply With Quote	I
23-10-2010, 13:55		#34
hippy • Technical Support Join Date: Jan 1970 Location: UK	Criginally Posted by ciseco	

Can we move onto what people would like to see instead, stuff like over the air picaxe programming, wake on receive, serial speeds, buffering, packet sizes, network segregation, sleep states and all that good stuff.

I don't do much wireless stuff but I can imagine that I'd like to have a battery powered thermometer on the roof and have that data sent to a PICAXE and AXE033. I suspect that's similar to what most PICAXE users want, be it thermometer, break-beam alarm, wind turbine and remote monitoring etc. With a list of wireless solutions in front of me, I'd be asking ...

Is it in my price range? Is the transmission range what I need? Is it on an acceptable frequency band? Does it work 'out of the box'? Does it require an aerial ? Can I add an aerial ? Is that cheap and easy ? Does it interface to the PICAXE via serial, ideally using Nxxxx baud rates? What choice of baud rates do I have ? Is it just four wires to connect; OV, +V, TX and RX? Can I use it with SERIN or do I need high-speed background receive ? Does it give me what's been sent or is there additional data I have to handle? Does it handle packets, CRC, retries etc or do I have to? Can it tell me when there's data ready or do I have to be ready for it? Can I tell it to hold off sending data until I'm ready? Does receiver buffer up packets ? How much ? What sized packets does it send? Does data have to pass to transmitter in a burst or can that be at leisure? Does transmitter auto-send packets or must it be triggered to send the packet ? Is it 5V and 3V3 capable ? Do I need any resistor dividers or other stuff to interface a 5V or 3V3 PICAXE ? Can I easily use it with vero-board or strip-board? Does transmitter auto-sleep and auto-wake? Does receiver indicate signal strength? Does receiver indicate errors or error rates ? Is it easy to get at non-data information? Can I easily use multiple transmitters ? Can I easily use multiple receivers ? Does it automatically handle collisions, reject corrupt data ? Does receiver automatically let me know who a packet is from ? What packet source filtering is built in ? How complicated is configuration? Does it remember configuration between power-downs? Can it be configured in a PICAXE circuit and out of circuit via PC? Can it be used and controlled from a PC, using VB.Net etc? For PC connection, do I need MAX232 or simple resistor divider ?

It seems a lot but that's what I would ask myself. Obviously some things may be more important than others, I'll live with limitations for cost savings, but equally may pay more to avoid limitations or get some feature.

To turn that into a spec of what I'd like if someone were building it for me, is all of that, complete flexibility, choice of how I want it to work, as and when I choose. I'd likely accept less than what I'd like.

It also all depends on application. Some of that is pretty irrelevant or not so important for a simple 'pass some data over' application, but very important for fully networked solutions. Is it realistic to expect a single product to be the top choice for each? If it fits then it's a good product, should do well.

In practice, my choice would likely be dumb 433MHz/868MHz modules for passing data and a PICAXE-08M as receiver filter, or XBee to make it easier (though configuration and interfacing may be harder). So something with more ease of use than XBee, two at the price of a dumb module pair / paired-set would probably convince me. Of course, \$1 eBay dumb module pairs may convince me to live with the limitations they have. One cannot really say until all the options and their specs are laid out in front.

On over-the-air PICAXE programming; it's a sort of Holy Grail but more complicated than it seems, more than just the wireless link - Has to work with the widest range of PICAXE, needs to reliably download every time thus has to reset or power cycle PICAXE devices, has to be able to program a specific PICAXE when there's a multitude of wireless programmable ones. You can add limitations but that reduces the usefulness.

Blog this Post Reply Reply With Quote 23-10-2010, 15:01 #35 Dippy • Moderator Good questions, can't think of ANY device of hand that ticks all those boxes. Join Date: Jan 1970 Location: UK On a semi-lighter note:-Posts: 10,423 I take it that when you say "\$1 eBay dumb module pairs.." that you actually mean "\$1 eBay dumb module pairs that are of sufficient documented quality that will permit me to make an RF device safe to use and/or is compliant with EU/UK/MyRegion Radio regulations" ?? 🥯 We wouldn't want to see or encourage anyone to fall foul of Mr OFCOM... I realise the scent of "Cheap" often smothers the classy perfume of quality, legality and common sense, but I would suggest Brits get hold of: **UK Interface Requirement 2030** ETSI EN 300 220-1 (or newer) - both available at OFCOM, though I doubt if many/any will look.

and look at http://stakeholders.ofcom.org.uk/spe...mpt-radio-use/

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#36 23-10-2010, 16:53 ciseco o Senior Member Hippy that is a superb range of questions. I reckon we can come close to answering everything in the positive, bar Join Date: Jan 2008 maybe a few things. If you don't mind I'll print it out and discuss with our man John (quy behind the XRF coding) Posts: 480 see if we cant get 100% topped out. He feels really confident in emulating a PC with the 8051 micro so the picaxe is unaware it's being programming by another micro. What I think falls outside of current implementation is-Can I tell it to hold off sending data until I'm ready ? does this mean you want to send yet hold in the buffer somehow? If so why? Maybe I have misunderstood. Transmitter auto wake/sleep, this snycronous up down thing was tried with the digi mesh firmware for the xbee, it cured one issue but created many more. I dont think we would try to do this. Is it easy to get at non-data information ?Not sure what this means Does receiver automatically let me know who a packet is from ?not via serial pass through, there is provision within the packet, could be implemented. Dippy you are cheeky waving the finger of sarcasm at the regs/\$1, tickeled me, the wife just asked what I was smirking at 🥯 The firmware does pre filter like your 08 example, this is at the moment on aP packets where bytes 3&4 are the address, so in this case you wouldnt need an extra micro. Makes me feel we might have anticipated what people might want reasonably well. Miles medical marijuana

	Last edited by ciseco; 31-01-2011 at 00:48.
Blog this Post	Reply Reply With Quote
23-10-2010, 17:27	#37
hippy • Technical Support Join Date: Jan 1970 Location: UK Posts: 22,443	 Originally Posted by ciseco Hippy that is a superb range of questions. I reckon we can come close to answering everything in the positive, bar maybe a few things. If you don't mind I'll print it out and discuss with our man John (guy behind the XRF coding) see if we cant get 100% topped out. Please do and use it anyway you want to, and I hope other RF users will add their own desires as well. They've probably done more and got more experience than I have.
	Originally Posted by ciseco Can I tell it to hold off sending data until I'm ready? does this mean you want to send yet hold in the buffer somehow? If so why? Maybe I have misunderstood. My bad choice of "sending" word. When the receiver gets a packet, can the PICAXE tell the receiver to hold onto data until ready to take it. Can the PICAXE ask for one byte at a time.
	Originally Posted by ciseco Is it easy to get at non-data information ?Not sure what this means Can obviously receive data bytes sent, was thinking can it get at configuration settings, who from, and other data the RF module has but isn't normally passed over[/quote]

Representation of the second sector of the second s

Dippy you are cheeky waving the finger of sarcasm at the regs/\$1, tickeled me, the wife just asked what I was smirking at

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28/10/2016

WINI 2.4Gnz WIReless NRF24L01 Transceiver Wodule - Page 4

You'll both have noted something	g was missing in r	ny list - I do li	ve in the real wo	rld like everyone else :-)

Headline criteria for personal use are usually - Does it do what I need, am I willing to pay the cost, can I use it. Is it so cheap and probably useful that nothing else matters.

Originally Posted by ciseco

Makes me feel we might have anticipated what people might want reasonably well.

That's good to hear and I hadn't expected otherwise.

Blog this Post

None

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23-10-2010, 18:00	#38
Dippy • Moderator Join Date: Jan 1970 Location: UK Posts: 10,423	 I was being half-serious about some of these cheapo, unknown, untested Super-cheapo-crappo devices. I really hope users show a little respect for their neighbours as my own tests at 43xMHz have shown the effects that RF can have on some Freeview channels for example. I sincerely think they should remove the word "quality" from next Year's dictionary, it doesn't get used much nowadays What next? Jeremy Kyle guests working in the UN?
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