Subject: RE: ??: RE: Pseudorandom Code
To: tjohnson@AmericanTCB.com
Cc: whgraff@qwest.net

Dear Tim,
Attached is the reply from CSR Chris.
Alan
----- Âà§eªÌ Alan Lane/ADT ©ó 2002/03/25 07:35 PM -----
Chris Neal

Alan
A couple of points which I hope will help.
The first is that the processing gain is solely concerned with the receiver
side. As such, the transmitter side can be modified without worrying about
processing gain.
The second is that the processing gain test is concerned to check that
signals can be pulled out of ambient noise effectively. That is to say,
it
is looking for an improvement in the signal:noise ratio at the output of
the
demodulator compared to that at the input to the receiver.
In the case of BlueCore modules, the improvement in the S:N ratio is
determined entirely by the BluecCore chip. Putting an LNA in front of
BlueCore with a passband suitable for Bluetooth operation, amplifies both
the signal and the noise within the Bluetooth band to the same degree. The
S:N ratio at the input to BlueCore is therefore independent of the presence
or absence of this amplifier - apart from a very small degradation due to
the amplifier noise.
In just the same way, the jammer to signal ratio at the input to the
BlueCore is independent of the presence or absence of an LNA. This being
the case, the processing gain determined using the CW jammer method will
be
the same with or without an LNA.
That the FCC agree with this is manifestly true, since a whole variety of
BC01 modules featuring different combinations of power amplifiers and LNAs
have already been approved by referencing the one processing gain test
report. I can see no reason why your application will not also be
accepted.
Best Regards
Chris Neal

-----Original Message-----
From: alan_lane@adt.com.tw [mailto:alan_lane@adt.com.tw]
Sent: 22 March 2002 04:38
To: Chris.Neal@csr.com
Cc: 'frank_cheng@ccandc.com.tw'; brian@adt.com.tw; alan_lane@adt.com.tw;
alex_gau@ccandc.com.tw; charli_ho@ccandc.com.tw; george_pu@ccandc.com.tw
Subject: ??: RE: Pseudorandom Code

Dear Neal,
Can you please comment my e-mail to Nick regarding the PG data
of the device integrating both LNA and CSR's chip solution ?
By the way, it is highly appreciately to have a copy of your e-mail

communication
with FCC Joe. Thank you.
Regards,
Alan

----- Âà§eªÌ Alan Lane/ADT ©ó 2002/03/22 12:23 PM -----

Alan Lane

Dear Nick,
I understand that the processing gain of spread spectrum will be always the
same
once the correlator on the baseband stage has not been changed. But
unfortunately,
the Jamming Margin method suggested by FCC is normally used in PG testing,
which
the test result will be influenced by the IF, RF filter and also the LNA on
the RF output
statge. As I check the block diagram, CC&C add one LNA on the RF output
port. We
are sure that we will be challenged by FCC for showing the compliance, the
PG testing
provided by CSR is not so convinced. Can you please kindly comment ? Thank
you.
By the way, you have mentioned that Mr. C. Neal has discussed with J.
Dichoso for the
need of retest the PG. Can you forward their e-mail to me ? I would like to
file that as
an exhibition to FCC.
Regards,
Alan

Nick Jones

Hello Frank,
> 1) The occupied bandwidth in Section 15.247(a)(1)(ii).
> 2) Conducted output power specified in Section 15.247(b)(1).
> 3) EIRP limit in Section 15.247(b)(3).
> 4) RF safety requirement in Section 15.247(b)(4)
> 5) Spurious emission limits in Section 15.247(c)
> 6) Power spectral density requirement in Section 15.247(f) in the
> acquisition mode.
>
> For processing gain requirements, you can submit the attached file
> (processgain.pdf) (you do not need to test this!!), together with the
> following explanation
>
> "
> Our Bluetooth product contains a module built using CSR's BC01 chip.
This

> said module's Bluetooth functionality is completely determined by the
BC01
> chip which features an integral transmitter, receiver and the processing
> gain filters. As discussed and agreed between the FCC and CSR, all BC01
> based modules therefore have identical processing gains.
> "
>
> Additionally, for all products, items 1-12 on the attached file
> (fcc-guide.pdf), are common to all Bluetooth devices and will therefore,
> not vary from device to device.
> So this list can be copied and pasted into the FCC application.
>
> These above mentioned issues should make the application documentation
> requirements a lot easier, the pseudocode I believe you require is item
4.
>
> If you do have any questions, please do not hesitate to contact me.
>
> Thanks and regards,
>
>
> <<FCC-Guide.pdf>> <<CSRProcessGain.pdf>>
>