Subject: FCC/IC Certification of RADWIN 2000 3GHz BAND, RADWIN 1000 3GHz BAND and RADWIN 5000 3GHz BAND

April 10, 2012

To whom it may concern,

RADWIN Ltd wishes to market the RADWIN 2000 3GHz BAND, RADWIN 1000 3GHz BAND and RADWIN 5000 3GHz BAND radio devices, complying with FCC 47CFR, Part 90 at 3.650 - 3.700 GHz regulation.

RADWIN 2000 3GHz BAND and RADWIN 1000 3GHz BAND are point-to-point radio links, consisting of two radio units, one at each end of the link, enabling wireless connectivity for either urban or rural deployments, supporting both access and backhaul applications, providing Ethernet and TDM data interfaces.

RADWIN 5000 3GHz BAND is a point to multi-point system consisting one base station and several client units (CPEs), enabling wireless connectivity for either urban or rural deployments, supporting both access and backhaul applications, providing Ethernet and TDM data interfaces.

RADWIN Ltd wishes to conform to FCC DA 07-4605 (November 14, 2007) FCC-certified equipment requirements:
"Unrestricted contention protocols are broadly compatible and function to prevent interference even with other, dissimilar contention technologies on the market. Equipment using an unrestricted protocol can operate on all 50 megahertz (3650-3700 MHz)".

The RADWIN 2000 3GHz BAND, RADWIN 1000 3GHz BAND and RADWIN 5000 3GHz BAND radio links are based on RADWIN TDD air protocol that meets the FCC definition of a "unrestricted" contention based protocol capable of avoiding co-frequency interference with devices using other types of contention-based protocols, by incorporating the following mechanisms reflected in the following sections.

1. *Unrestricted Protocol Description*

In this section we address the following aspects:

a. The key requirements for operation using unrestricted contention based protocol, by recognizing other systems (both similar to RADWIN and different from RADWIN) that operate on a co-channel.
b. Indicating the strategy for sharing the spectrum by using spectrum sensing to determine if other devices are transmitting and the method to share the bandwidth under co-channel occupancy.

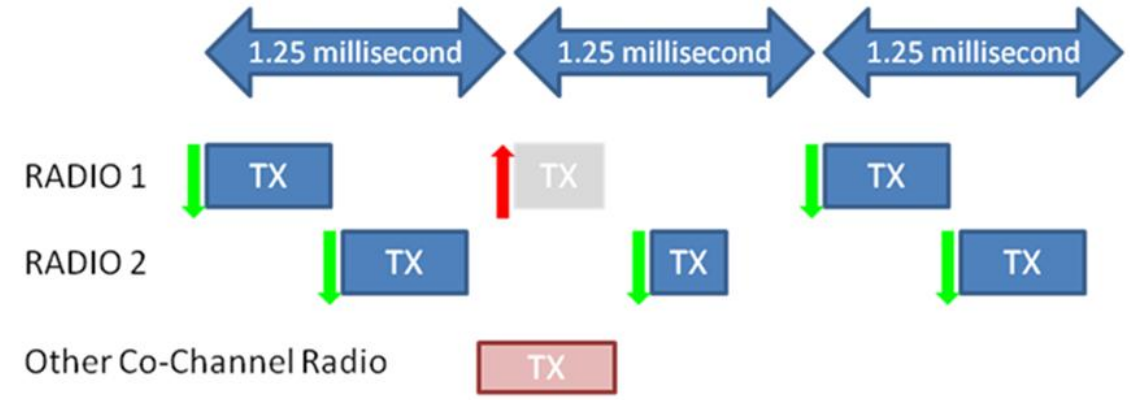
i. The RADWIN device employs a "listen before transmit" function whose purpose is to detect co-channel transmissions above a detection threshold.
ii. The detection circuitry measures power level irrespective of the transmitting system's air interface type.

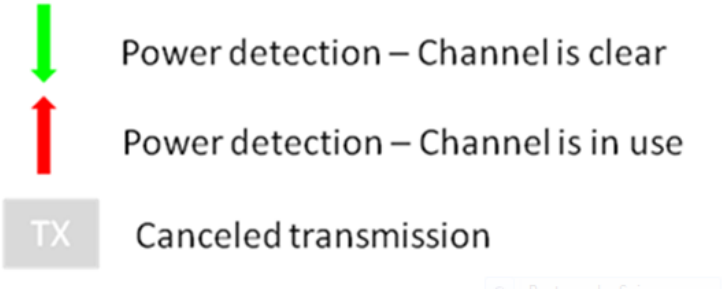
iii. The operating channel is sensed in order to detect and determine if there are other devices, similar to RADWIN air interface protocol or others, that transmitting in co-channel.

iv. This carrier sense for co-channel transmission detection is made at the start of each RADWIN transit frame (every 1.25msec).

v. Upon detection of co-channel occupancy the system cancels the planned next transmitting frame to enable sharing the bandwidth in the same channel for other transmitting devices.

vi. The following drawing illustrates the RADWIN mechanism of carrier sense and co-channel detection occupancy action:





2. Threshold detection to determine occupancy rules

In this section we address how the RADWIN device determines if another system is using the spectrum and at what detection level.

i. The RADWIN device radio design includes circuitry for performing an in-band interference measurement.
ii. The device observes to determine if the channel is busy before each attempt to transmit a frame. This occur every 1.25msec.
iii. The device measures the co-channel power and monitors if the channel is busy at the initial time and in communication stage, between transmission frames, during a period of 10usec every 1.25msec (radio frame duration of the system).
iv. The bandwidth being monitored for co-channel occupancy is the same as the system operating channel bandwidth.
v. The threshold detection to determine occupancy in co-channel operates according the following rules:

a. The minimal signal strength of an operating link is -65dBm, with no relation to the antenna gain or transmission modulation type.
b. The power detection threshold level for co-channel occupancy is -75 dBm and it is a fixed system value. Threshold level cannot be modified by the user.
c. The operating system threshold (receive threshold) as mentioned is -65 dBm in all operating channel bandwidths.
d. The detection threshold level is independent to the signal strength of the operating link.
e. Master and client devices use the same carrier sense mechanism and rules for co-channel occupancy and same power detection level.

3. Action taken when occupancy is determined

In this section we address what action does the RADWIN system when it determines occupancy.

a. Upon the detection of a transmission above the threshold the RADWIN device vacates the channel and aborts transmission immediately.
b. Transmission will not start until the channel is clear.
c. The traffic rate does not impact on the performance of the spectrum sensing.
d. The service quality and traffic performance are affected under co-channel occupancy detection and depend on the detection rate.
e. In case many concurrent carrier senses detected co-channel occupancy and the system cannot provide the required service to operator, the system will achieve the system sync loss threshold and will evacuate the specific channel.
f. The system in this case will select a less interfered channel for acquisition using an ACS mechanism for the next link synchronization.
g. RADWIN system has a TDD scheduled air-interface protocol where a remote slave device is waiting from the master station information to re-schedule its uplink transmission.

4. The opportunities for other transmitters to operate

In this section we address to the opportunities provided by the RADWIN system for other transmitters to operate.

i. The system activates the same described mechanism in all system states including "start-up acquisition" and operational mode.
   Detection mechanism as described above is activated prior to any transmission.
ii. The system activates the same described mechanism in any traffic load.
iii. When there is no information to transmit the system still performs a spectrum sense in order to evaluate any co-channel occupancy.
iv. Transmissions are scheduled in blocks of 1.25 frame duration. The frame duration includes both downlink and uplink transmissions.
v. Master and client stations are listening prior to every transmission at the start of each frame transmission.
vi. There are no limitations imposed by the RADWIN system. When sharing channel occupancy, system capacity will reduce. In this case the RADWIN system scheduler will prioritize traffic (based on packet classification rules) accordingly.
vii. The system enables the co-existence of two RADWIN radios and minimize their co-channel spectrum sharing, by:
    a. Each system will only transmit when it has detected that the channel is clear.
    b. If one system is transmitting, the second system will have it's opportunity to transmit when the data transfer is complete
    c. With evenly loaded systems, the opportunities to transmit will statistically be equal for both
    d. This "listen before transmit" mechanism minimizes interference between systems, hence reducing the need for re-transmissions and maximizing overall spectrum efficiency
    e. RADWIN also activates a propriety synchronization mechanism that synchronizes transmit and receive paths of two radios minimizing the mutual-interferences.

With the implementation of the above mechanisms RADWIN radio links enable a reasonable opportunity to operate in a co-channel under unrestricted mode.

Best regards,
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