iBurst FCC Experimental License Request

1 Purpose of Operation

The **Defense Advanced Research Projects Agency** (**DARPA**) has been developing a broadband communications system that can be used for interoperability with DOD and First Responders; this system will provide essential data during an emergencies. The Eagle Project has partnered with Kyrocera to provide this Technology for first hand review by DARPA

- Kyrocera iBurst Technology:
  - File Number: 0781-EX-PL-2014
  - Class of Station: FX
  - Station Locations: MOBILE
  - Effective: 01/02/2014
  - Expiration: 01/02/2015

  By its application, IBurst sought authority to operate in__(city, county,State)_this will allow testing the various types of terrain and topology. (i) conduct technical demonstrations and testing of service in the various townships and evaluate performance is in accordance with design specifications; (ii) demonstrate performance of the systems to prospective purchasers; and (iii) perform limited market studies.

2 Experimental License Explanation

As detailed in paragraph 1 above, Raytheon seeks this STA in order to allow testing and technical demonstrations of the iBurst systems in _(City State)___ for 120 days. as well as demonstrating performance of the iBurst system to prospective buyers, within the Department of Defense (DoD), Homeland Defense, and commercial markets. These DARPA objectives are in line with the Defense Research objectives in seeking and mentioned FCC Experimental License for __(city. State)___.

Technical Specification for the I-Burst System

Transmitter Specifications

The following table shows the transmitter specifications for *iBurst* Base Station.

Item Specification Comments
Composite Output Power 44.6 dBm
Maximum Stream Power per Antenna 30.0 dBm/stream/antenna
Rated Stream Power 33.8 dBm/stream
Minimum Stream Power 13.8 dBm/stream
Avg. power over an active time slot
Transmit Power Error
Composite Output Power □2.0 dB
Rated Stream Power □3.0 dB
Transmit Power Control Step Size 1.0 dB Max.
Transmit Power Control Non-Linearity 1.0 dB_{p-p}
Adjacent Carrier Power
625 kHz offset −9.2 dBm/ch Max.
1,250 kHz offset or more −16.2 dBm/ch Max.
With a single signal of 33.8 dBm

transmitted power
In-Band Multicarrier Intermodulation
Products
−6.2 dBm/ch Max. With 8 carriers of 44.6 dBm
composite transmitted power

Out-of-Band Spurious Emission
9 kHz < *f* □ 150 kHz −46.8 dBm/1 kHz Max.
150 kHz < *f* □ 30 MHz −46.8 dBm/10 kHz Max.
30 MHz < *f* □ 1.71 GHz −36.8 dBm/1 MHz Max.
1.71 GHz < *f* □ 1.89 GHz −24.8 dBm/1 MHz Max.
1.89 GHz < *f* □ 3.50 GHz −36.8 dBm/1 MHz Max.
3.50 GHz < *f* □ 12.75 GHz −30.8 dBm/1 MHz Max.

Emission power of spurious
components at an antenna port
with a single signal of 30.0 dBm
or 8 carriers of 33.8 dBm

Receiver Specifications

The following table shows the general receiver specifications for *iBurst* Base Station.

Item Specification Comments
Nominal quality FER 10^{-2}
Receive sensitivity
Mod Class = 0 −108.6 dBmMax.
Mod Class = 1 −107.0 dBmMax.
Mod Class = 2 −105.3 dBmMax.
Mod Class = 3 −102.4 dBmMax.
Mod Class = 4 −100.2 dBmMax.
Mod Class = 5 −97.9 dBmMax.
Mod Class = 6 −95.9 dBmMax.
Mod Class = 7 −94.6 dBmMax.

Maximum Input Power −45.0 dBmMin.
Adjacent Channel Selectivity
625 kHz offset 30.0 dB Max.
1,250 kHz offset or more 46.0 dB Max.

Spurious Response
In-Band 46.0 dB Min.
1 MHz > f_{off} > 0 Hz 46.0 dB Min.
15 MHz > f_{off} > 1 MHz 56.0 dB Min.
Out-of-Band 56.0 dB Min.

Intermodulation Response
In-Band 41.0 dB Min.
1 MHz > f_{off} > 0 Hz 41.0 dB Min.
15 MHz > f_{off} > 1 MHz 41.0 dB Min.

Out-of-Band 45.0 dB Min.
DSSI Estimator Accuracy
−105.0 dBm to −45.0 dBm ±4.0 dB
−110.0 dBm to −105.0 dBm ±6.0 dB.

SINR Estimator Accuracy ±3.0 dB