

I-Burst Technology Experimental License Authorization Request

Purpose of Operation

Eagle Project Corp. has been contracted by DARPA demonstrate a pilot network to conduct research and development for potential military purposes. The pilot will be used to validate the use of this technology for Department of Defense applications.

Contract number SCT-11-005

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|---------------------|-----------------|
| - File Number: | 0561-EX-PL-2011 |
| - Class of Station: | FX |
| - Station Location | Mclean, VA |
| - Effective: | 01/16/2012 |
| - Expiration: | 01/15/2013 |

Experimental Explanation

To provide systems that combine innovative features such as Kyocera's I-Burst Technology networking. This combination yields unmatched capability, performance, and long term reliability to exceed warfighter expectations for battlefield connectivity.

Additional Information: General Radio Specifications

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

Item Specification Comments

Maximum input power 0 dBm Max. No damage
Frequency Range 1,790 to 1,795 MHz
Instantaneous Bandwidth 5 MHz
Carrier Spacing 625 kHz
Simultaneous Carrier 1 to 8 Any channel frequency within a
5 MHz bandwidth.

Transmitter Specifications:

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
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
 $9 \text{ kHz} < f \leq 150 \text{ kHz}$ -46.8 dBm/1 kHz Max.
 $150 \text{ kHz} < f \leq 30 \text{ MHz}$ -46.8 dBm/10 kHz Max.
 $30 \text{ MHz} < f \leq 1.71 \text{ GHz}$ -36.8 dBm/1 MHz Max.
 $1.71 \text{ GHz} < f \leq 1.89 \text{ GHz}$ -24.8 dBm/1 MHz Max.
 $1.89 \text{ GHz} < f \leq 3.50 \text{ GHz}$ -36.8 dBm/1 MHz Max.
 $3.50 \text{ GHz} < f \leq 12.75 \text{ GHz}$ -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
transmitted power
Out-of-Band Non-Spurious Emission
 $\leq 10 \text{ MHz}$ $\leq f_{\text{off}} < \leq 5 \text{ MHz}$ -20.8 dBm/1 MHz Max.
 $\leq 5 \text{ MHz}$ $\leq f_{\text{off}} < \leq 0.5 \text{ MHz}$ -16.8 dBm/1 MHz Max.
 $\leq 0.5 \text{ MHz}$ $\leq f_{\text{off}} < 0 \text{ Hz}$ -13.8 dBm/100 kHz Max.
 $0 \text{ Hz} < f_{\text{off}} \leq 0.5 \text{ MHz}$ -13.8 dBm/100 kHz Max.
 $0.5 \text{ MHz} < f_{\text{off}} \leq 5 \text{ MHz}$ -16.8 dBm/1 MHz Max.
 $5 \text{ MHz} < f_{\text{off}} \leq 10 \text{ MHz}$ -20.8 dBm/1 MHz Max.
Emission power of non-spurious
components at an antenna port
with a single signal of 30.0 dBm
or 8 carriers of 33.8 dBm
transmitted power.
Transmit OFF Power
In-Band -60.0 dBm/1 MHz Max. With receive mode
Frequency error $\pm 5 \pm 10 \pm 8$ With GPS locking
Modulation accuracy 3.5 %_{rms}
Occupied bandwidth 625 kHz Max.
Transmit burst timing error $\pm 2 \pm \text{sec}$

Ramp Up/Down transmit power +6.0 dB/10 μ sec
Guard time transmit power –6.0 dBm/1 MHz Max

Receiver Specifications:

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 $\pm$ 4.0 dB

–110.0 dBm to –105.0 dBm $\pm$ 6.0 dB.

SINR Estimator Accuracy $\pm$ 3.0 dB SINR Range : –5 to 25 dB