

LAW OFFICES  
**GOLDBERG, GODLES, WIENER & WRIGHT**  
1229 NINETEENTH STREET, N.W.  
WASHINGTON, D.C. 20036

HENRY GOLDBERG  
JOSEPH A. GODLES  
JONATHAN L. WIENER  
BRITA D. STRANDBERG  
LAURA A. STEFANI

—  
HENRIETTA WRIGHT  
THOMAS G. GHERARDI, P.C.  
COUNSEL

(202) 429-4900  
TELECOPIER:  
(202) 429-4912  
[general@g2w2.com](mailto:general@g2w2.com)

**ELECTRONIC FILING**

October 4, 2004

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**Re: WT Docket 03-103**  
*Ex Parte Presentation*

Dear Ms. Dortch:

On October 1, 2004, Barclay Jones, Vice President, Field Operations of Flarion Technologies, Inc. ("Flarion") met with Richard Arsenault, Katherine Harris, B. C. "Jay" Jackson, Jr., David Furth and Gregory Vadas of the Wireless Telecommunications Bureau, and Julius Knapp, James Schlichting, Ahmed Lahjouji, George Sharp, Ron Chase and Ira Keltz of the Office of Engineering and Technology, to discuss Flarion's position regarding certain issues in the Air-to-Ground ("ATG") proceeding referred to above.

Mr. Jones discussed bandwidth requirements for the use of flash-OFDM technology for the ATG service, and stated Flarion's position that a paired 1.5 MHz block would allow sufficient guardbands to deploy a single flash-OFDM channel. Flarion stated that the flash-OFDM channel is nominally 1.25 MHz, but that guardbands are required for interference protection to and from adjacent channel operations. Flarion stated that guardbands were required due to practical limitations on receive filter characteristics. Flarion also stated that its experience in terrestrial cellular deployments demonstrated the need for guardbands between non-co-located adjacent channel systems on the order of 200 kHz. Flarion also stated that overlapping 1.25 MHz channels in a 2 MHz allocation could not be deployed without interference. Concerning the flash-OFDM technology, Flarion stated that air traffic speeds can be supported.

In addition, in response to an inquiry from the Commission staff, Michael Thornton of Flarion sent the attached e-mail (with attachments) to Jay Jackson on September 22, 2004, regarding the above-referenced proceeding. Mr. Thornton was unaware of the need to file such e-mail messages in the record of this proceeding. This failure to file the e-mail message in a timely manner does not prejudice any party, since the substance of Mr. Thornton's e-mail reflects the position stated in his *ex parte* filing on September 2, 2004.

Please direct any questions regarding this matter to the undersigned.

Respectfully submitted,

A handwritten signature in black ink that reads "Henry Goldberg". The signature is written in a cursive style with a large, looped "H" and "G".

Henry Goldberg  
Attorney for Flarion Technologies, Inc.

Attachments

cc: Richard Arsenault  
Katherine Harris  
B. C. "Jay" Jackson, Jr.  
David Furth  
Gregory Vadas  
Julius Knapp  
James Schlichting  
Ahmed Lahjouji  
George Sharp  
Ron Chase  
Ira Keltz

## Attachment

-----Original Message-----

> From: Thornton, Michael  
> Sent: Wednesday, September 22, 2004 8:15 AM  
> To: 'jay.jackson@FCC.gov'  
> Cc: Abramsky, Victor  
> Subject: Flarion occupied bandwidth for ATG  
>  
> Jay,  
>  
> Our commercial deployment in Raleigh, NC proves that we are capable of being  
deployed in 1.5MHz channel.  
>  
> As can be seen from the test data submitted all FCC emissions  
> requirements are met in a 1.5MHz channel when using a filter with rejection  
characteristics like the one used in the Raleigh, NC deployment.  
>  
> Spectral emissions for our system are independent of the band 1.9Ghz or 800MHz and  
emissions are the same.  
>  
> In other words the occupied bandwidth for flash-OFDM is 1.5MHz.  
>  
> If you have any questions please correspond back to Victor Abramsky my Director of  
RF engineering and myself.  
>  
> Thanks again,  
> Michael

## **Flarion Base Station Emissions Characteristics**

### Flarion Base Station Transmitter Emissions

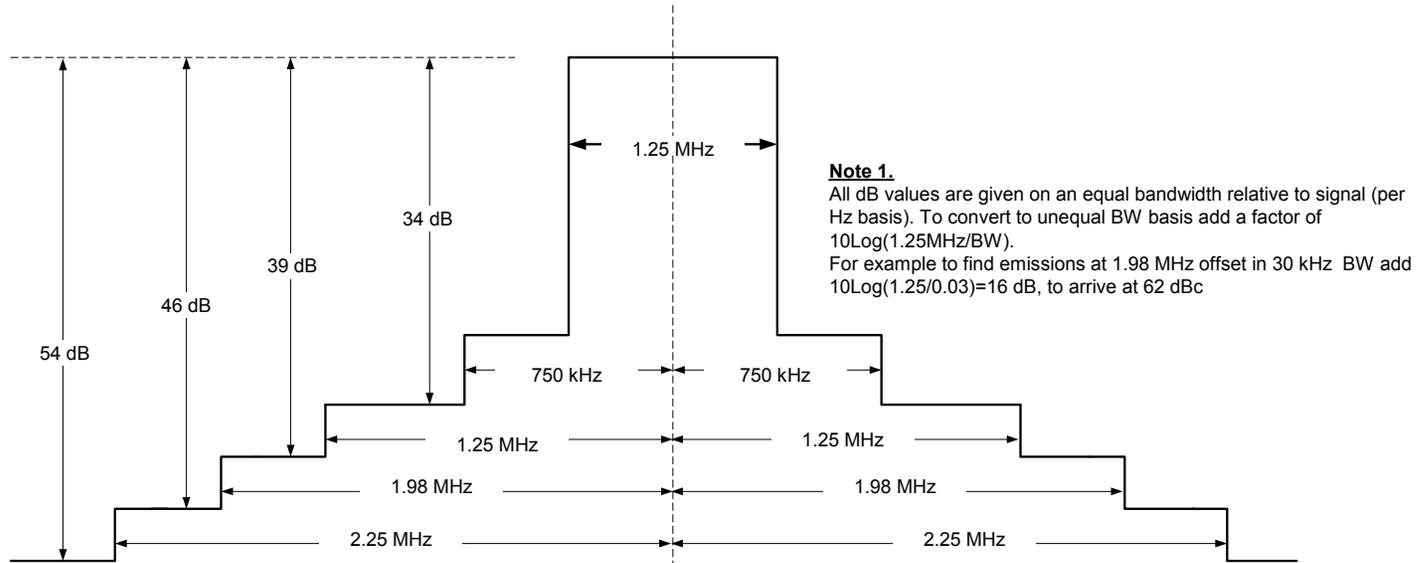
8.0	Emissions (not to exceed) <small>see note 2</small>	-45 dBc/30 kHz @+/- 750 kHz -45 dBc/30 kHz @+/- 885 kHz -9 dBm/30 kHz @+/- 1.25 MHz -60 dBc/30 kHz @+/- 1.98 MHz -13 dBm/1MHz @+/- 2.25 MHz -16 dBm/100kHz @+/-3.125 MHz -143 dBm/30 kHz in Rx band
-----	---	---

Note 2:

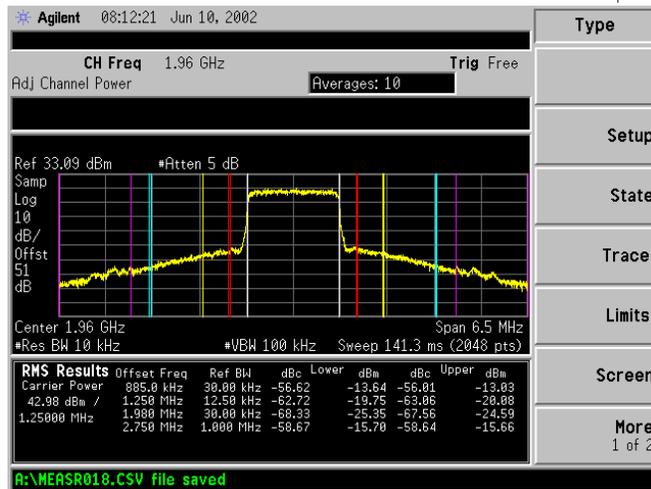
- a) XdBc/YkHz means that emissions measured with resolution bandwidth Y are X dB below total signal power.
- b) @+/- Z kHz means that the closest edge of measurement bandwidth is Z kHz away from signal center.

**The design target Emissions mask and typical signal are illustrated below :**

### Flarion Base Station Transmitter emissions



**Note 1.**  
 All dB values are given on an equal bandwidth relative to signal (per Hz basis). To convert to unequal BW basis add a factor of  $10\text{Log}(1.25\text{MHz}/\text{BW})$ .  
 For example to find emissions at 1.98 MHz offset in 30 kHz BW add  $10\text{Log}(1.25/0.03)=16$  dB, to arrive at 62 dBc



Flarion Proprietary and Confidential

## **Selective Flarion Mobile RF Characteristics**

## 1.0 Flarion Mobile Emissions and Peak to Average characteristics

- Achieve up to +25 dBm at antenna port using mass production mobile Power Amp ( PA cost < \$2 in quantity).
- Comfortable with +23 dBm output power and all emission requirements of IS-98/2000 and 3GPP2 standards
- F-OFDM mobile Peak-average similar to CDMA 2000/1XRTT

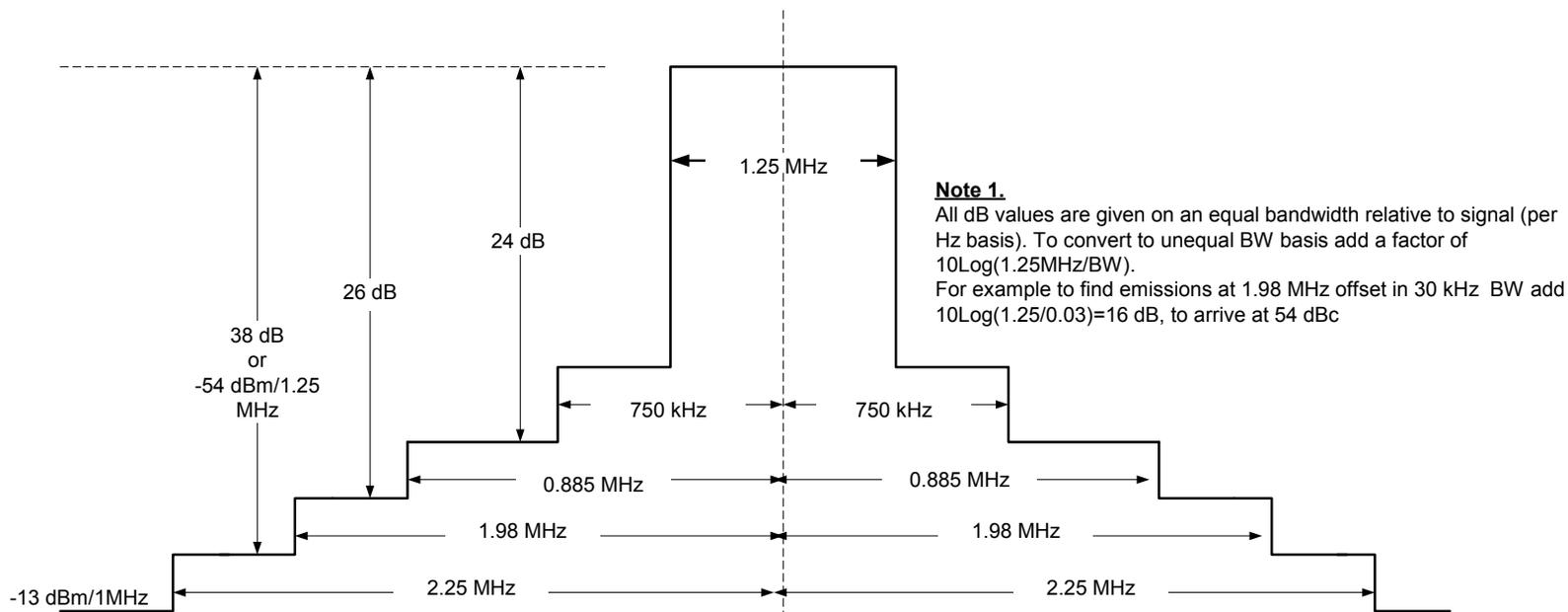
### Flarion Mobile Transmitter Emissions

Emissions (see note 1)	
@ +/-885 kHz to +/- 1.98 MHz	-42 dBc / 30KHz
@ +/-1.98 MHz to +/- 4 MHz	less stringent of -54 dBc / 30 kHz or -54 dBm/1.25 MHz
@ +/-2.25 MHz to +/- 4MHz	-35 dBm / 6.25 kHz and -13 dBm/1MHz
@ > +/-4 MHz	ITU Categories A and B
@ Own Rx channel	-123 dBm/1.25 MHz
@ Host Rx band	-110 dBm/30 kHz

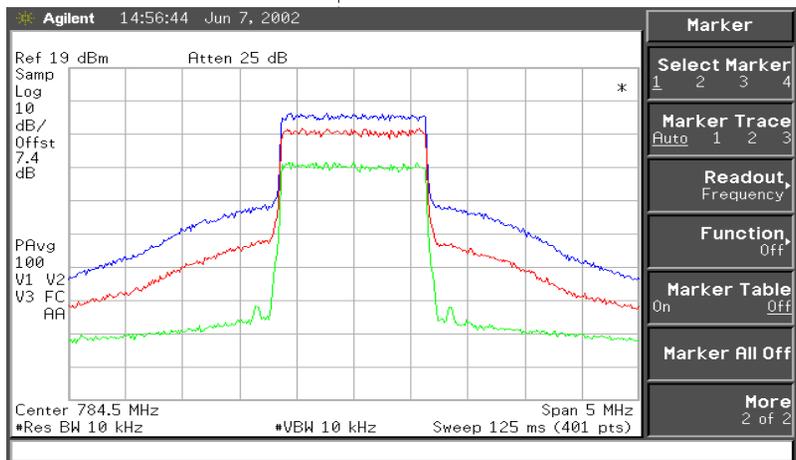
Note 1:

- a) XdBc/YkHz means that emissions measured with resolution bandwidth Y are X dB below total signal power.
- b) @+/- Z kHz means that the closest edge of measurement bandwidth is Z kHz away from signal center.

## Flarion Mobile Transmitter emissions



**F-OFDM PC Card output spectrum at antenna port**  
 +25 dBm (blue)  
 +20 dBm (red)  
 +10 dBm (green)



**Flarion Proprietary and Confidential**