

# LRIT Operational Capability Requirements

## 1.0 Background:

In response to Coordination Group for Meteorological Satellites (CGMS) recommendations for digital meteorological satellite broadcasts, the National Oceanic and Atmospheric Administration (NOAA) replaced the Weather Facsimile (WEFAX) broadcast with a Low Rate Information Transmission (LRIT) digital service. NOAA uses its LRIT broadcast system to disseminate Geostationary Operational Environmental Satellite (GOES) data, GOES Data Collection System (DCS), the National Weather Service's Emergency Managers Weather Information Network (EMWIN) and other meteorological products to users using the 1691 Megahertz GOES L band down-link frequency. NOAA's LRIT system is based on the CGMS LRIT/HRIT Global Specification (CGMS Document Number CGMS 03, Issue: 2.6, dated 12 August 1999).

NOAA initially established two levels of LRIT operational capabilities, the Initial Operational Capability (IOC) and the Final Operational Capability (FOC). The transition between NOAA's LRIT IOC and FOC services is ongoing and will be determined by the evolution of FOC requirements and the associated ground systems.

## 2.0 LRIT IOC Requirements:

NOAA's LRIT IOC requirements included all of the replaced WEFAX capabilities, functions, and performance. The information data rate that was required to support these IOC requirements was not to exceed 64 kbps. The information data rate required to support FOC requirements was not planned to exceed 128 kbps.

System	Visible	Infrared	Water Vapor	Images	Charts	Messages
GOES	22	89	24			
POES	14	30				
NWS Charts					59	
Meteosat				68		
GMS						
Hourly Admin						24
Ad Hoc Admin						
Other						5
GOES	20	88	24			
POES	14	30				
NWS Charts					59	
NWS Messages						
Meteosat				7		
MTSAT			40			
Hourly Admin						
Ad Hoc Admin						
Other						5

Table 1: GOES WEFAX Product Summary

These products are characterized and summarized by the LRIT IOC schedules presented in Table 1. These schedules include the timing of image and chart transmissions over a typical 24-hour period during the initial transition period. Visible and infrared (IR) images were generally transmitted over a four-minute interval; charts were generally transmitted over a five-minute interval. The generation of images and charts was generally continuous. The IOC requirements included some improvements in the latency and possible improvements in the diversity or flexibility of products.

NOAA’s LRIT system complies with the CGMS global specification. NOAA also considered the ‘mission-specific’ specifications of the European LRIT satellite, Meteosat Second Generation (MSG), and the Japanese LRIT satellite (MTSAT), as baselines for the GOES LRIT mission-specific specification.

### 3.0 LRIT FOC Requirements

LRIT FOC requirements shall include additional environmental and imagery type products. The primary constraint for FOC requirements is the information data rate of 128 kbps. LRIT on GOES-R will be combined with the EMWIN service into an approximately 400 kilobits per second HRIT/EMWIN broadcast. LRIT users and the availability of NOAA resources drive the evolution of FOC requirements. During the transition period, back-up streams of GOES Data Collection System (DCS) and National Weather Service Emergency Managers Weather Information Network broadcasts were added.

The current GOES-East and GOES West types and numbers of products can be found in Table 2. NOAA LRIT Product Tables can be found in Tables 3 and 4.

System	Visible	Infrared	Water Vapor	Images	Charts	Messages
<b>GOES-East LRIT Products</b>						
GOES	136	264	136			
POES	0	0				
NWS Charts					696	
NWS Messages						128
Meteosat (GIF)				8		
MTSAT (GIF)				8		
EMWIN Products				All available Data Stream	All available Data Stream	All available Data Stream
DCS Messages						All available 350-400
Hourly Admin						24
Ad Hoc Admin						When required by operations.
<b>GOES-West LRIT Products</b>						
GOES	136	264	136			
POES	0	0				
NWS Charts					696	
NWS Messages						128
Meteosat (GIF)				8		
MTSAT (GIF)				8		
EMWIN Products				All available Data Stream	All available Data Stream	All available Data Stream
DCS Messages						All available 350-400
Hourly Admin						24
Ad Hoc Admin						When required by operations.

Table 2: Summary of Current NOAA LRIT Products over a 24 Hour Period While on a Normal Imaging Schedule (July, 2010)

Product Name	Format	Source	Schedule	Reference
GOES East	Imagery: 1. Visible 2. Infrared. 3. Water Vapor.	LRIT System	GOES Schedule	<a href="http://www.oso.noaa.gov/goes/schd-sector/index.htm">http://www.oso.noaa.gov/goes/schd-sector/index.htm</a>
GOES West	Imagery: 1. Visible 2. Infrared. 3. Water Vapor.	LRIT System	GOES Schedule	<a href="http://www.oso.noaa.gov/goes/schd-sector/index.htm">http://www.oso.noaa.gov/goes/schd-sector/index.htm</a>
Tropical Storm Products	Graphic	NOAA/NWS Hurricane Center	Hourly	<a href="http://www.nhc.noaa.gov/tafb_latest/">http://www.nhc.noaa.gov/tafb_latest/</a>
EMWIN	Text	National Weather Service	As Received	<a href="http://www.weather.gov/emwin/index.htm">http://www.weather.gov/emwin/index.htm</a>
DCS	Text	NOAA/NESDIS/OSO	As Received	<a href="http://www.noaasis.noaa.gov/DCS/">http://www.noaasis.noaa.gov/DCS/</a>
Meteosat (MSG)	Graphic	NOAA/NESDIS/OSDPD	Hourly	<a href="http://www.osdpd.noaa.gov/ml/info/index.html">http://www.osdpd.noaa.gov/ml/info/index.html</a>
MTSAT	Graphic	NOAA/NESDIS/OSDPD	Hourly	<a href="http://www.osdpd.noaa.gov/ml/info/index.html">http://www.osdpd.noaa.gov/ml/info/index.html</a>
Administrative Text Message	Text	LRIT System Administrators	Hourly or As Needed	N/A

Table 3: NOAA GOES East LRIT Content Table (Updated 092109)

Product Name	Format	Source	Schedule	Reference
GOES West	Imagery: 1. Visible 2. Infrared 3. Water Vapor	LRIT System	GOES Schedule	<a href="http://www.oso.noaa.gov/goes/schd-sector/index.htm">http://www.oso.noaa.gov/goes/schd-sector/index.htm</a>
GOES East	Imagery: Infrared	LRIT System	GOES Schedule	<a href="http://www.oso.noaa.gov/goes/schd-sector/index.htm">http://www.oso.noaa.gov/goes/schd-sector/index.htm</a>
Tropical Storm Products	Graphic	NOAA/NWS Hurricane Center	Hourly	<a href="http://www.nhc.noaa.gov/tafb_latest/">http://www.nhc.noaa.gov/tafb_latest/</a>
EMWIN	Text	National Weather Service	As Received	<a href="http://www.weather.gov/emwin/index.htm">http://www.weather.gov/emwin/index.htm</a>
DCS	Text	NOAA/NESDIS/OSO	As Received	<a href="http://www.noaasis.noaa.gov/DCS/">http://www.noaasis.noaa.gov/DCS/</a>
Meteosat (MSG)	Graphic	NOAA/NESDIS/OSDPD	Hourly	<a href="http://www.osdpd.noaa.gov/ml/info/index.html">http://www.osdpd.noaa.gov/ml/info/index.html</a>
MTSAT	Graphic	NOAA/NESDIS/OSDPD	Hourly	<a href="http://www.osdpd.noaa.gov/ml/info/index.html">http://www.osdpd.noaa.gov/ml/info/index.html</a>
Administrative Text Message	Text	LRIT System Administrators	Hourly or As Needed	N/A

Table 4: NOAA GOES West LRIT Content Table (Updated 092109)