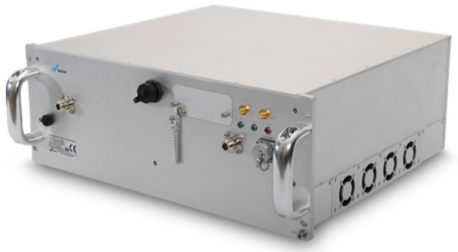
HELIOS® Digital Multi-Band Multi-Operator In-Train Repeater

Providing reliable Multi-Band Cellular Voice and Data inside fast moving Long Distance Trains is challenging in many respects. Trains travel through Cellular Boundaries requiring the Repeater to quickly re-tune to locally Licensed Sub-Bands. The Repeater Equipment is subject to constant vibration conditions and occasional high shock levels. Also, the Donor Antenna, usually located on the roof the Train Car, must have sufficient Isolation from the Service Antenna to insure that a Self-Oscillation condition is not initiated. Many new Rolling Stock are delivered with Built-In 19" Rack Space to house In-Train Repeaters.



(For reference only, ports may change)

For these reasons, Helios has developed our IP65 rack mount Digital Multi Band In-Train Repeaters to resolve these issues. It provides a fully Digital software-based platform and optional on-the-fly GPS-Based filter Re-Tuning at Boundary Borders.

Features

- Supports 900MHz, 1800MHz and 2100MHz in a single chassis with a fully integrated multi-Band combiner
- Supports GSM, UMTS and LTE technology
- SOC & Embedded architecture enables delivery of significantly improved network coverage with very low power consumption
- Local IP Web Browser GUI via Built-In RJ-45
- Optional on-the-fly GPS-Based filter Re-Tuning at Boundary Borders
- Additional RJ-45 port for Remote IP viewing of Local GUI or HELIOS® Netview™ NMS Remote Control via external Ethernet or wireless modem
- Built-in 4G Modem for HELIOS® NMS Remote Control
- SNMPv3 Trap alarm and MIB file support
- Supports multi tunable Sub-Bands for multiple operator and technology in each Band
- Built-in Proprietary 60 dB AGC & ALC function
- IP65 and Standard 19" Rack-mount
- Composite downlink RF Output power +30dBm per Band with 85 dB Gain

Technical Specifications

Items		HELIOS® Digital Multi-Band In-Train Repeater		
		900MHz	1800MHz	2100MHz
Frequency Range	Uplink	880-915 MHz	1710-1785 MHz	1920-1980 MHz
	Downlink	925-960 MHz	1805-1880 MHz	2110-2170 MHz
Filter Design (customized)		2*(4-10) + 1*(0.2-6.2) + 3*(0.2-5.2) MHz	4*(4-20) + 2*(4-15) + 2*(0.6-10) MHz	4*(4-15) MHz
Max Composite Output Power	Uplink	30±2dBm per Band		
	Downlink	30±2dBm per Band		
Gain	Uplink	80±2dB		

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Tel. +39-0362/1722878 – 1722877

Downlink	85±2dB
AGC Control Range	Min 60dB
Gain Control Range	30dB (1dB Step)
GPS	Optional GPS based frequency reconfiguration
VSWR	< 1.8
Ripple in Band	Max ±3dB
Spectrum Emission Mask	Complies with ETSI Standard
RF Connector	N-type Female
I/O Impedance	50 ohm
Uplink Noise Figure	Max 8dB
Group Time Delay	Max 8μS
Temperature Range	-35°C to +55 °C
Relative Humidity	Max 95%
MTBF	Min. 50,000 hrs
Power Supply	220 VAC, 50-60Hz or 110 VDC
Power Consumption	Max 250W
Local Control	Web browser GUI Local control via RJ-45 interface
Remote Control	Built-in 4G Modem and additional RJ-45 port for Helios® Netview™ NMS remote control or Remote IP viewing
Helios NMS Monitor Function	Real-time alarm for Temperature, RSSI, Input Under Power, Input Over Power and etc. Parameters monitoring for Output Power, Gain, Uplink ATT, Downlink ATT, etc.
IP Rating	IP65
Dimensions	Max 19”4U
Weight	Max. 35KG

**** Technical Specification subject to change without notice***

Order Information

Model Number	Description	Remark
DRI091821P30G85	HELIOS® Digital Multi-Band In-Train Repeater	

ETSI Compliance Certificate below: ↓

Bay Area Compliance Labs Corp.

Opinion Number: B1305151

DIRECTIVE 1999/5/EC
NOTIFIED BODY STATEMENT OF OPINION
Bay Area Compliance Laboratories Corp.

Date of Issue:	2013-05-24
Applicant:	Fujian Helios Technologies Co., Ltd. 4/F,Helios Building, No. 12 Xiangyue Road, Torch Hi-Tech Zone, Xiangan District, Xiamen, Fujian, China
Trade Name:	HELIOS
Model Number:	DRI091821P30G85
Equipment Type:	In-Train Repeater
Serial Number:	1212021(Assigned by BACL, Shenzhen)
Frequency Range:	880-915MHz(Uplink) and 925-960MHz(Downlink) 1710-1785MHz(Uplink) and 1805-1880MHz(Downlink) 1920-1980MHz(Uplink) and 2110-2170MHz(Downlink)
Max Output Power (E.I.R.P):	Uplink: 30 dBm Downlink: 30 dBm
Modulation Type:	GMSK, QPSK, 16QAM, 64QAM
Antenna Type:	External Antenna, N-Type Female
Notified Body 1313:	Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave., Sunnyvale, CA 94089, USA Tel: 1-(408)-732-9362 Fax: 1-(408)-732-9164 www.baclcorp.com

Essential Requirements	Specifications/Standards	Document Identification	Results
Radio Spectrum, Article 3.2	ETSI EN 300 609-4 V9.2.1 (2010-10) ETSI EN 301 908-1 V5.2.1 (2011-05) ETSI EN 301 908- 11 V5.2.1(2011-07) ETSI EN 301 908- 15 V5.2.1(2011-07)	R2XM120703010-22A R2XM120703010-22B R2XM120703010-22C	Compliant
EMC, Article 3.1(b)	ETSI EN 301 489-1 V1.9.2 (2011-09) ETSI EN 301 489-8 V1.2.1 (2002-08) ETSI EN 301 489-23 V1.5.1 (2011-11) EN 50121-3-2: 2006; EN 61000-3-3: 2008 EN 61000-3-2:2006 + A2:2009	R2XM120703010-02 R2XM120703010-01	Compliant
Safety, Article 3.1(a)	EN 50155:2007	R1XM120703010-03	Compliant
Health, Article 3.1(a)	EN 50385:2002	R2XM120703010	Compliant

Note: The use and operation of this device at each installation, requires the approval of the frequency band or sub-band license holder(s) and operator(s).

Our opinion in accordance with Annex IV of Council Directive 1999/5/EC on radio equipment and telecommunications equipment and the mutual recognition of their conformity is that the apparatus identified above **complies** with the requirements of that directive stated above.

Marking: It is recommended that the product bear the CE mark, the notified body number(s) as depicted to the right, only when all the essential requirements have been met, and a Manufacturer's Declaration of Conformity (EN 45014) has been filed with the European Commission

CE 1313

Number of Annexes to this statement:1

Authorized by: _____
John Chan, Technical Expert

Bay Area Compliance Laboratories Corp.1274 Anvilwood Ave., Sunnyvale, CA 94089, U.S.A.
Tel: 1-(408)-732-9162 Fax: 1-(408)-732-9164