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February 14, 2023

VIA ELECTRONIC FILING (ULS)

Marlene H. Dortch, Secretary
Federal Communications Commission
45 L Street, NE
Washington, DC 20002

Re: *TerreStar Corporation Request for Temporary Waiver of Substantial
Service Requirements for 1.4 GHz Licenses, WT Docket No. 16-290*
Certification of Completion of Final Deployment Obligation

Dear Ms. Dortch:

On January 9, 2023 TerreStar Corporation (“TerreStar”) submitted its showing that it has met its Final Deployment Obligation to deploy Wireless Medical Telemetry Service (“WMTS”) on its licensed commercial 1.4 GHz spectrum.¹ TerreStar hereby notifies the Wireless Telecommunications Bureau that it plans to commence its licensed Part 27 services using the 1.4 GHz spectrum and respectfully requests that the Bureau seek comment on this notification pursuant to the April 2020 Order on Reconsideration (“Order”).²

WMTS equipment, authorized under Part 95 of the Commission’s rules, enables medical personnel to monitor patients’ vital signs, benefiting patients and improving patient care. The Order concluded that deploying the 1.4 GHz spectrum for WMTS “serves the public interest” by helping to “address the need for expanded spectrum capacity for life-critical medical telemetry.”³ It required TerreStar to meet successive “performance milestones” as to its deployment of 1.4

¹ *TerreStar Corporation Request for Temporary Waiver of Substantial Service Requirements for 1.4 GHz Licenses*, Order on Reconsideration, 35 FCC Rcd 4354 (WTB 2020) (“Order”).

² *Id.* at 4371 ¶ 35 n.112. Attached as Exhibit 1 is a certification from TerreStar’s Chief Executive Officer supporting this letter, as required by the Order.

³ *Id.* at 4355 ¶ 2.

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GHz spectrum for WMTS and to file progress reports demonstrating that each milestone was completed by a specified date.⁴

During 2021 and 2022, TerreStar timely completed successive performance milestones and filed corresponding progress reports in ULS documenting how each milestone was met. On January 9, 2023, TerreStar filed its last progress report demonstrating that it has achieved the Final Deployment Obligation as set forth in the Order, which requires operational deployments of 1.4 GHz spectrum “in at least 2,000 health care facilities nationwide” by July 30, 2023.⁵ The report identified 2,180 such facilities. TerreStar met this final deployment requirement more than six months ahead of the Order’s July 30, 2023 deadline. And on January 13, 2023, TerreStar filed its notifications of completion of construction pursuant to the Order.⁶

TerreStar’s deployment of its 1.4 GHz commercial spectrum to support WMTS has made the Commission’s vision a reality. This unique deployment of commercial spectrum to serve hospitals, care givers and patients has achieved the Commission’s objective to put commercial spectrum to use to improve health care in concert with existing WMTS users.

TerreStar is submitting this notification because it has determined that it can continue to support WMTS through its licensed 1.4 GHz spectrum, while also deploying that spectrum for non-WMTS uses. Its 1.4 GHz spectrum is licensed for flexible commercial use under Part 27 of the Commission’s rules. The April 2020 Order held that, “despite the Commission’s intent when it adopted flexible rules for the commercial 1.4 GHz Band, non-WMTS use of this band *at this time* would carry a significant risk of interference to WMTS in the adjacent bands, with potentially life-threatening implications for the patients being monitored by these devices.”⁷ However, the Order also recognized that TerreStar may want to use the spectrum to support non-WMTS services, and approved that use under the following process:

We understand TerreStar expects that new technology may allow it to deploy additional services in this spectrum. As such, we provide that once TerreStar has satisfactorily met its Final Deployment Obligation, TerreStar may file a letter certifying as such as well as a full technical demonstration of how such additional uses will not cause harmful interference to in-band or adjacent-band WMTS, or otherwise undermine or prevent the continued provision of WMTS (including in

⁴ *Id.* at 4371-73 ¶ 35.

⁵ TerreStar Corporation Request for Temporary Waiver of Substantial Service Requirements for 1.4 GHz Licenses, WT Docket No. 16-290, Certification of Milestone Compliance and Request for Confidential Treatment, Lead Call Sign WQGU885.

⁶ Order, 35 FCC Rcd at 4372-73 ¶ 35. TerreStar Corporation, Construction Notification, FCC Form 601, Lead Call Sign WQGU885 (filed Jan. 13, 2023).

⁷ Order, 35 FCC Rcd at 4370 ¶ 34 (emphasis added).

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vehicles and locations outside of health care facilities) on its 1.4 GHz spectrum. The Bureau will release a Public Notice seeking comment on any such letter and TerreStar may commence deployment of such additional services 90 days after release of that Public Notice absent an affirmative finding by the Bureau that such additional services will cause harmful interference to WMTS.⁸

This letter provides the requisite certification and technical demonstration. The Bureau accordingly should expeditiously seek comment on the attached technical demonstration so that TerreStar can launch additional services and quickly put the 1.4 GHz band to additional productive use.

Through several years of experience in working with the Part 95 WMTS and Part 27 1.4 GHz spectrum bands, TerreStar has developed protections for legacy and new WMTS equipment that enable WMTS equipment to safely co-exist in the 1.4 GHz band. As detailed in the attached Technical Statement, these protections include three co-existence elements:

- Recertification and authorization of legacy WMTS devices under Part 27, thereby removing desense threats because the devices are now operating in both Part 27 and Part 95 spectrum bands;
- Define protective WMTS and Part 27 flexible use signal levels, including a minimum WMTS received signal strength indicator (“RSSI”) that is 6 dB above the WMTS device detection threshold, and a maximum Part 27 flexible use RSSI that is 12 dB below the minimum WMTS system RSSI; and
- Define operational polygons at health care facilities, in coordination with ASHE, and procedures for interference identification and remediation in the very unlikely event that interference occurs.

Enabling 1.4 GHz spectrum to be put to use for other services clearly advances the public interest. There is continued and increasing demand for wireless services and thus for more spectrum for services – particularly the mid-band range that includes the 1.4 GHz band. The sooner the 90-day public comment period can be completed, the sooner TerreStar can begin operationalizing its plans for offering new commercial services.

⁸ *Id.* at 4371 ¶ 35 n.112.

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TerreStar thus urges the Bureau to seek comment on this showing as soon as possible. If additional information is needed, please contact the undersigned.

Sincerely,

/s/
Bryan N. Tramont

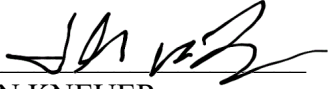
Attachments

Exhibit 1	Certification of John Kneuer
Exhibit 2	Technical Statement of TerreStar

EXHIBIT 1

CERTIFICATION OF JOHN KNEUER

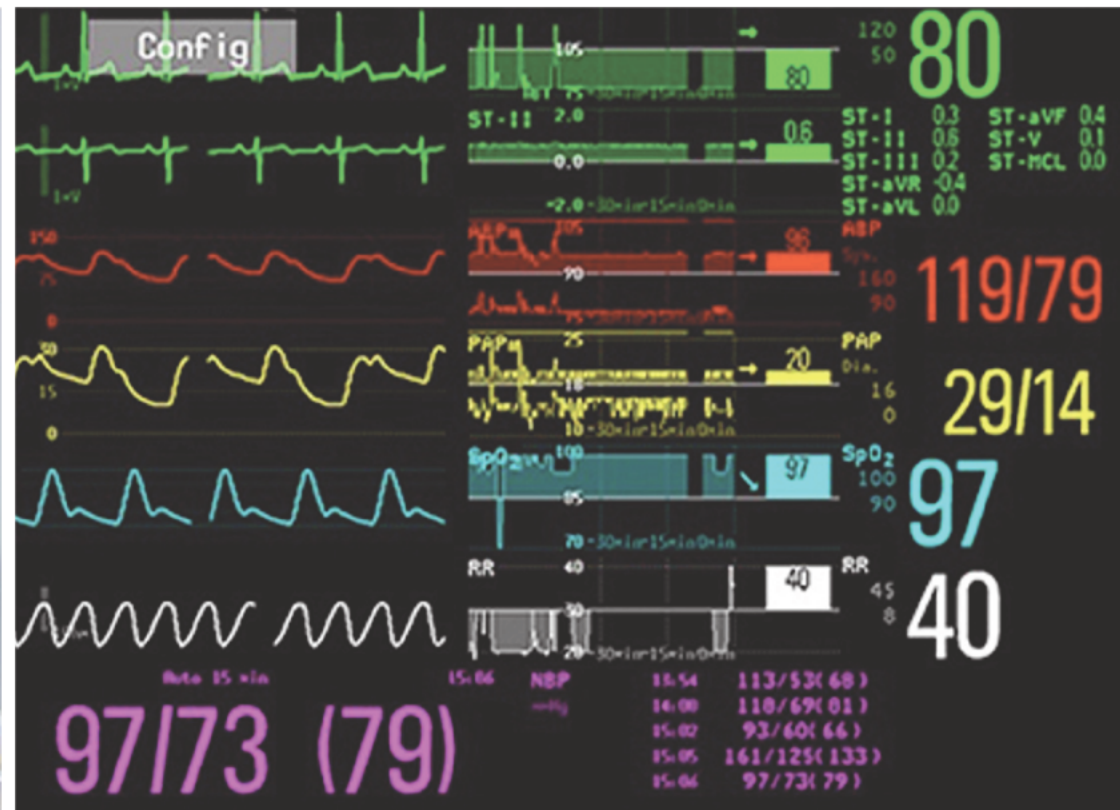
I, John Kneuer, am the Chief Executive Officer of TerreStar Corporation. I certify under penalty of perjury that the foregoing letter is true and correct to the best of my knowledge, information, and belief. Executed on February 14, 2023.



JOHN KNEUER

EHIBIT 2

TECHNICAL STATEMENT OF TERRESTAR



1.4 GHz Part 27 Flexible Use

Summary of Technical and Operational Methods for Co-Existence with WMTS

Introduction

The 1.4 GHz commercial band (collectively 1390-1395 MHz / 1432-1435 MHz) is governed by Part 27 rules and was designed for flexible use. The band is bordered by the 1.4 GHz Part 95 WMTS (Wireless Medical Telemetry Service) allocation (collectively 1395-1400 MHz / 1427-1431.5 MHz). Following concerns about adjacent band desense associated with early 1.4 GHz WMTS receivers, TerreStar proposed and implemented a plan by which existing WMTS receivers were updated and permitted by lease to use the 1.4 GHz commercial band for enhanced WMTS service in over 2100 hospitals across the United States.

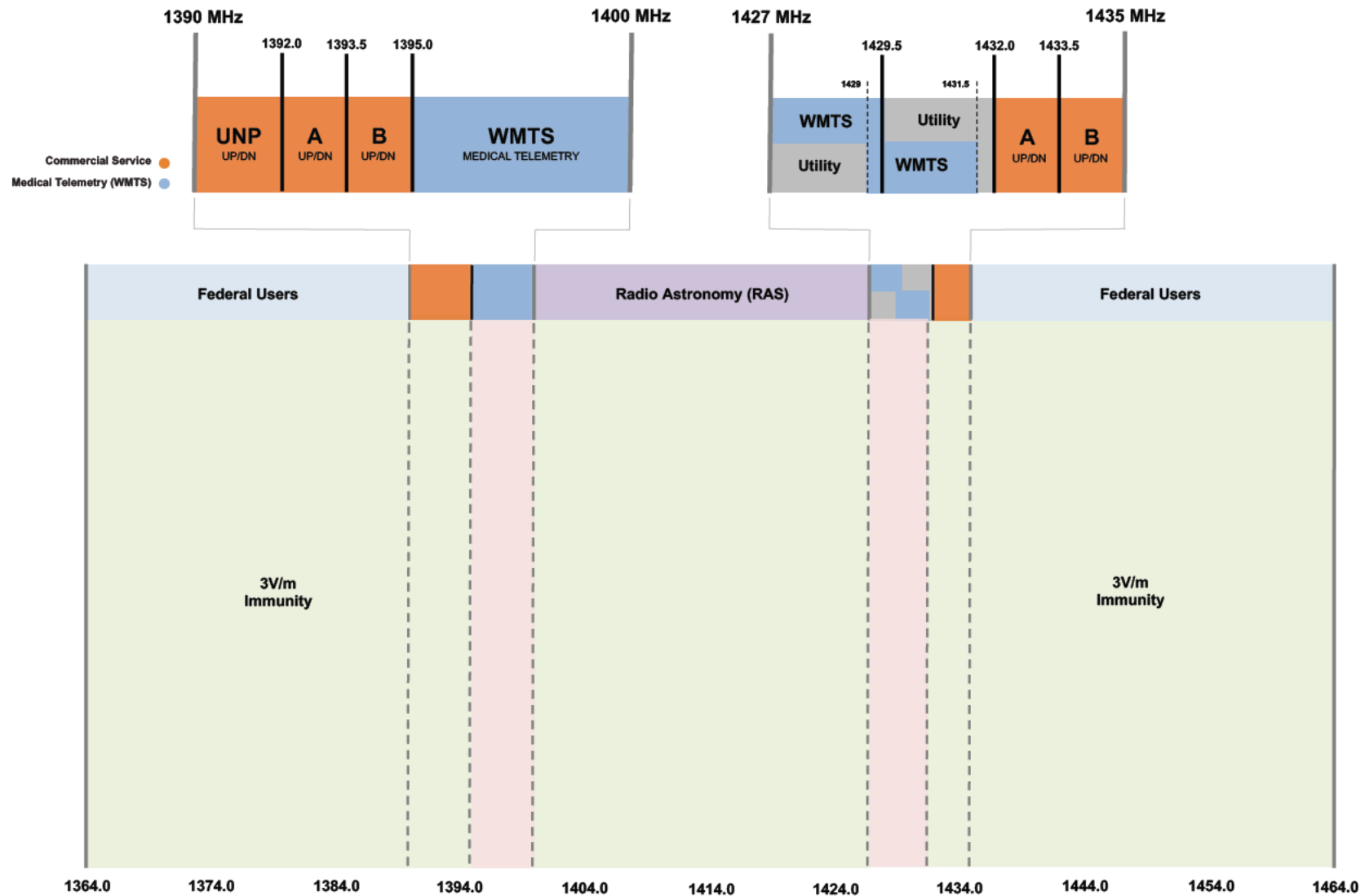
In enhancing Part 95 WMTS service by leased use of TerreStar's 1.4 GHz spectrum in certain hospital facilities, great care was taken by both TerreStar and the device manufacturer to ensure that hospital networks could successfully co-exist with future flexible use of the band (e.g. for specialized 5G New Radio and related network services). In fact, flexible use co-existence is a central feature of the nationwide lease authority for WMTS use of the band. For healthcare device manufacturers, such co-existence is not only possible, but also essential to the long-term viability of the patient monitoring function. Flexible use applications ensure low-cost access to commercial spectrum, while enabling secure and high-performance 3GPP compliant ecosystems that are not possible with the otherwise small scale of patient monitoring applications.

The following presentation summarizes methods that ensure effective flexible use co-existence with WMTS networks. Key points from the following include:

- ① **Part 27 Interference Vulnerability was Exclusive to a Single Ecosystem** – The adjacent band desense susceptibility was unique to the original manufacturer of Part 95 WMTS devices. New devices are now subject to enhanced receiver standards, which eliminate that vulnerability.
- ② **Part 27 Recertification of Legacy WMTS Devices Enable Interference Immunity** – Legacy devices now operate co-channel in the 1.4 GHz Part 27 allocation. This removes the uncoordinated network desense threat, while allowing the interference avoiding “frequency hopping” function of the WMTS network to operate across both Part 27 and Part 95 allocations.
- ③ **Signal Level Control at WMTS Facilities Guarantees Safe Co-Existence** – Nationwide lease agreement sets minimum incident WMTS power 6 dB above the WMTS detection threshold. Operating flexible use Part 27 applications to a maximum of 6 dB below the WMTS device threshold guarantees safe co-existence with a very significant 12 dB (16x) minimum relative power margin.

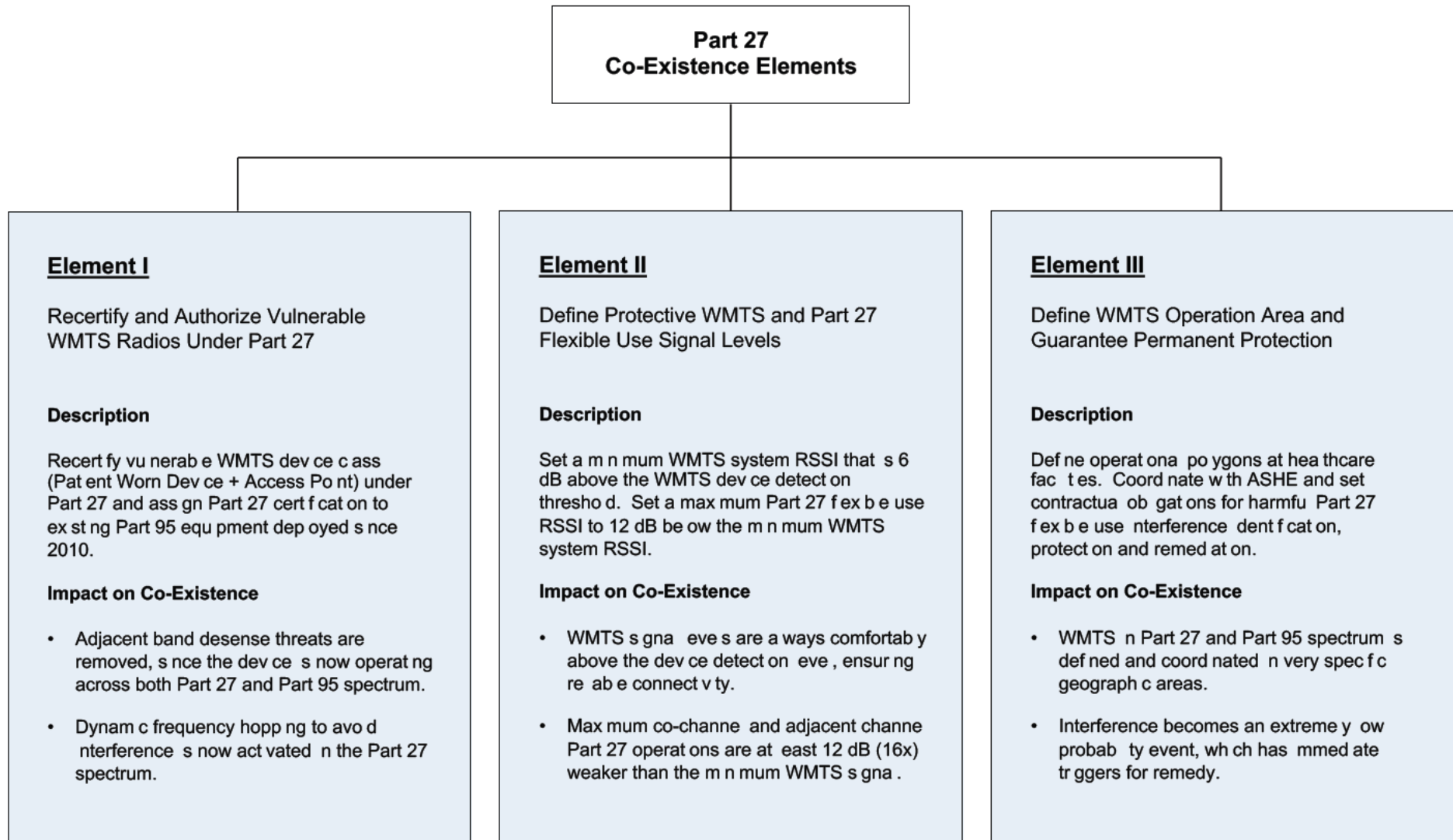
IEC 60601-1-2 Medical Device Interference Immunity Standard

WMTS equipment must comply with new IEC 60601-1-2 standards for RF interference immunity across 80-2000 MHz. Unlike that applied to early 1.4 GHz WMTS receivers, the new requirement ensures that modern equipment is not susceptible to adjacent band emissions.



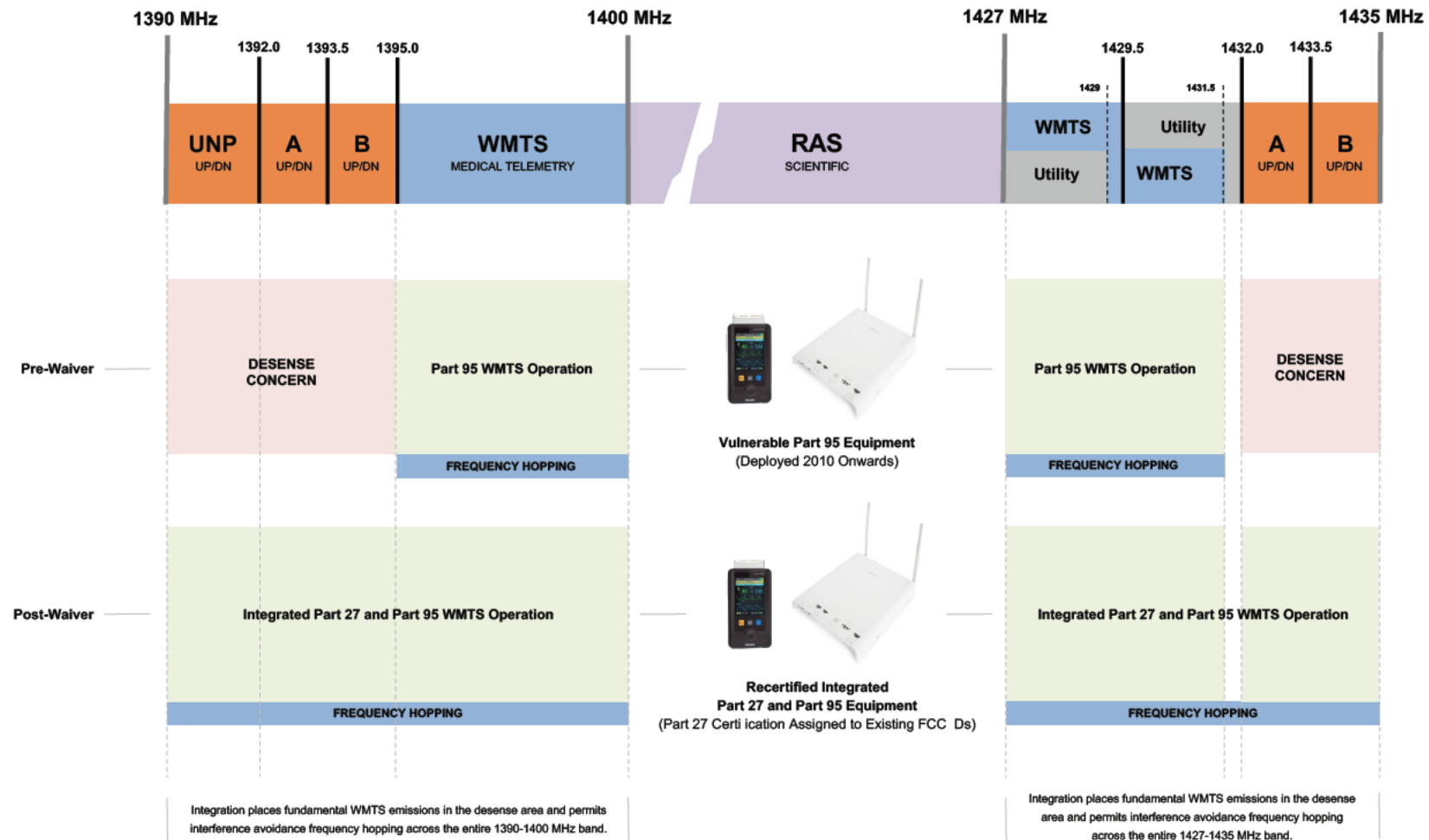
Summary of 1.4 GHz Flexible Use Co-Existence Methodology

The vulnerable legacy WMTS ecosystem is both protected and made more capable by three elements of technical and operational co-existence. Part 27 recertification removed desense and activated frequency hopping, while signal level management keeps flexible use applications well below the WMTS detection threshold.



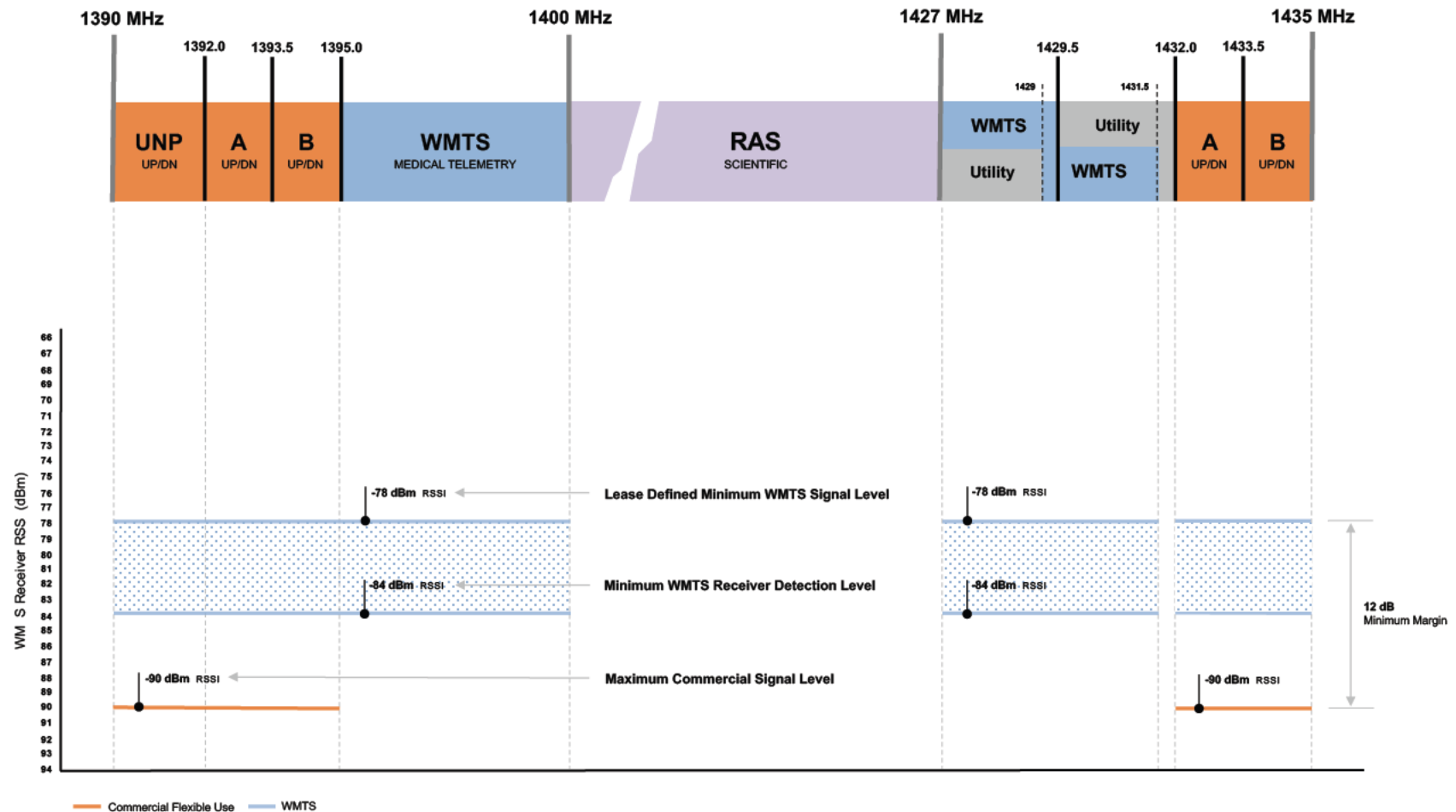
Element I: Recertify and Authorize Part 95 Radios for Part 27 WMTS Operation

The original WMTS ecosystem, vulnerable to adjacent band desense, has been recertified for Part 27 operation. Able to operate in both Part 27 and Part 95 band, the desense issue is eliminated. Interference avoidance features (frequency hopping) are also extended across both bands.



Element II: Define Protective WMTS and Part 27 Flexible Use Signal Levels

Nationwide lease agreements set a minimum WMTS system RSSI that is 6 dB above the WMTS device detection threshold. Part 27 flexible use applications are designed to create in-facility RSSI that is 6 dB below the threshold and 12 dB below the minimum WMTS system RSSI.



Element III: Define WMTS Operation Area and Guarantee Permanent Protection

Part 27 WMTS operational areas are defined by polygons that cover healthcare facilities. These healthcare facilities are then coordinated with ASHE to ensure successful Part 95 WMTS coexistence. Nationwide lease terms define and guarantee Part 27 flexible use interference identification, protection and remediation.

Facility Name [REDACTED]				Facility Image / Hospital-Authorized Area 	
ASHE Facility ID [REDACTED]	ASHE Coordination Complete Yes				
Street Address [REDACTED]	City [REDACTED]	State [REDACTED]	Zip Code [REDACTED]		
Facility Coordinates (Latitude, Longitude) [REDACTED]					
Facility MEA / MEA License [REDACTED]		Facility EAG / EAG Licenses [REDACTED]			
Notes No co-channel interference observed.					

1.4 GHz Spectrogram	
Location (Facility): [REDACTED]	
Location (City): [REDACTED]	
Location (Coordinates): [REDACTED]	
Frequency: 1390 - 1435 MHz	
RBW: 140 KHz	
Analyzer: Aaronia V6 MIL EE	
Antenna: OmniLOG 70600	
Date: 22 Apr 2022	
	

Figure: Sample Part 27 WMTS Facility Lease and Coordination File