



Mobile and Portable Device RF Exposure Policies KDB Pub. 447498 D01

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Note: The views expressed in this presentation are those of the author and may not necessarily represent the views of the Federal Communications Commission.



Overview

- Summary and status of KDB Publication 447498 D01 DR04 revision document, effective date, and transition-period considerations
- Selected highlights and pending revisions per comments received on Apr. 2021 draft publication 447498 D01 DR04



447498 (v07) Revision Status

- **Draft-Publication-for-Review KDB 447498 D01 DR04 (v07) was published in April 2021**
 - Title: *RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices*
 - In this presentation the draft publication version is referred to as “447498 (v07)”
 - Public comments were accepted through June 25, 2021
 - selected highlights from comments received are surveyed in this presentation
 - minor topics and editorial comments are not discussed herein
 - OET consideration and assimilation of the comments to prepare an updated 447498 (v07) version remains ongoing
- **Next stage of 447498 (v07) is planned to be a second circulation as a Draft-Publication-for-Review**
 - Next draft-for-comment expected to have DR05 (v07) numbering



447498 (v07) Effective Date

- Until Mar. 31, 2022:
 - The latest version of 447498 (v07) may continue be used, or
 - The previous version KDB Pub. 447498 D01 v06 may be used, per the transition considerations below
 - Within application filings each must be used in their entirety – no mixing
- After Mar. 31, 2022, all TCB Form-731 submissions and grants must use the final 447498 (v07) policies and procedures, along with the associated new §1.1307 test exemptions



447498 Transition Considerations

- The previous and still active KDB Pub. 447498 D01 v06 (including the test exclusion power thresholds therein) may continue to be used until Mar. 31, 2022, as per:
 - KDB Pub. 447498 D01 v06 policies and procedures must be used in their entirety – no mix of old and new [447498 (v07)] procedures within application filings
 - For devices not subject to TCB PAG: Form-731s and associated grants must be submitted to FCC by a TCB on or before Mar. 31, 2022
 - For devices subject to TCB PAG: TCB must submit PAG KDB inquiry and fully-populated Form 731 application on or before Mar. 31, 2022



447498 DR04 Clarifications

- Clarifications in Sec. 4.2 SAR for transmitters with hosts
 - Sec. 4.2 of 447498 (v07) is a reorganization and rephrasing of various module and peripheral transmitter provisions continued from preceding versions of KDB Pub. 447498 D01 (v05 and v06)
 - It is clarified here that the procedures of Secs. 4.2.3 through 4.2.6 of 447498 (v07) are applicable primarily for standalone operations of module and peripheral transmitters
 - The procedures now in Secs. 2.2, 3.1.8, and Appendix E of 447498 (v07) are applicable to address simultaneous transmission SAR exclusion and evaluation conditions for modules and peripheral transmitters
 - Same as with preceding versions of KDB Pub. 447498 D01 [Secs. 4.3.2 and 4.1 i) of v06]
- Other clarifications listed in DR04 Change Notice



447498 (v07) Discussion Proviso

- The following pages indicate work in progress by OET to address important issues that emerged from comments received on 447498 (v07)
- Updated guidance concepts are being devised for reducing industry burdens in certification applications processing, while preserving FCC RF exposure policies
- The following discussion items provide a preliminary overview of recent progress and focus towards an updated 447498 (v07) draft publication
 - Published version may differ



SAR Test Exclusions < 300 MHz (1)

- Based on comments received, SAR test exclusions for frequencies below 300 MHz similar as in KDB Pub. 447498 D01 v06 (and v05) are being considered for 447498 (v07)
 - For example, many smartphones also include §15.209 13 MHz near-field communications operations
 - Curve-plot values may be adjusted relative to P_{th} values at 300 MHz of new §1.1307(b)(3)(i)(B)

Example Power Thresholds (mW) per KDB Pub. 447498 D01 v06 (and v05)

	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
0.01 MHz	1185									
0.1 MHz	948									
1 MHz	711									
10 MHz	474									
< 100 MHz	237									
100 MHz	47	95	142	190	237	285	332	379	427	474
150 MHz	39	77	116	155	194	232	271	310	349	387
300 MHz	27	55	82	110	137	164	192	219	246	274



SAR Test Exclusions < 300 MHz (2)

- Determining suitable approaches for estimating power to compare against SAR test exclusion P_{th}
 - Preferred approach is antenna conducted power, furnished per device manufacturer design data/specifications
 - Alternatively, the most conservative determination approach should be used among, e.g., near-field measured quantities and component spec. sheet ratings



Simultaneous-Transmit SAR Considerations

- Simultaneous-transmission operations of devices that qualify for the standalone SAR test exemptions in 447498 (v07) Sec. 4.2
 - Simultaneous-transmission exemption conditions are established per 447498 (v07) Secs. 2.2, 3.1.8, and Appendices C and E
 - For $P_i < P_{th}$, where P_i is available maximum time-averaged power or ERP, whichever is greater, and P_{th} is per Eq. B.2, $Estimated\ SAR = 1.6 P_i / P_{th}$ [W/Kg]
- Other guidance being considered for recurring items
 - e.g., simultaneous-transmission from single antenna, test reductions with some types of MIMO operations



447498 (v07) Other Comments (1)

- Equipment certification filings (Form-731) for unintentional-radiator RF sources
 - Prior to FCC 19-126 exposure rules changes, exposure compliance information was required by rule in Form-731 filings only for RF devices operating under rule parts itemized in former §1.1307(b)
 - With §1.1307(b)(1)(i) and §2.1033(f) per FCC 19-126, exposure compliance information is required for all RF sources regulated by FCC
 - Guidance in 447498 (v07) is being considered to ease exposure compliance reporting in Form-731 filings for unintentional-radiator RF sources



447498 (v07) Other Comments (2)

- For portable device SAR exemptions per 447498 (v07) Secs. 2.1.3 and B.4
 - where minimum test separation distance is < 5 mm, a distance of 5 mm according to 447498 (v07) Sec. 3.1.5 is applied to determine SAR test exemption
 - power and distance are rounded to the nearest mW and mm before calculation
- Other comments received from the Apr. 2021 review-draft circulation, but not discussed herein, remain under consideration
 - will be accommodated and accounted for as much as practicable in the upcoming 447498 version (to be DR05)



447498 Associated KDB Pubs.

- 447498 (v07) is part of a set of KDB procedures and policies documents concurrently under revision
 - Associated KDB pubs. include:
 - 648474 D04 (handsets) and 648474 D03 (handsets accessories), 616217 (laptops and tablets), 996369 D02 (modules Q&A), 865664 D02 (RF exposure reporting)
- Draft-Publication-for-Review versions of these associated KDB pubs. planned to be released before 447498 (v07) is finalized



Thanks for your attention !