

# Supplement



## Digital Standard 1xEV-DO Rev. A

R&S<sup>®</sup> AMU-K47  
1402.6602.02

R&S<sup>®</sup> SMATE-K47  
1404.7900.02

R&S<sup>®</sup> SMJ-K47  
1409.2306.02

R&S<sup>®</sup> SMU-K47  
1408.7410.02

R&S<sup>®</sup> AFQ-K247  
1401.5958.02

R&S<sup>®</sup> AMU-K247  
1402.9357.02

R&S<sup>®</sup> SMJ-K247  
1409.2358.02

R&S<sup>®</sup> SMU-K247  
1408.7462.02



**Dear Customer,**

The Signal Generator includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

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Trade names are trademarks of the owners.

# Grouped Safety Messages









**Make sure to read through and observe the following safety instructions!**







All plants and locations of the Rohde & Schwarz group of companies make every effort to keep the safety standard of our products up to date and to offer our customers the highest possible degree of safety. Our products and the auxiliary equipment required for them are designed and tested in accordance with the relevant safety standards. Compliance with these standards is continuously monitored by our quality assurance system. The product described here has been designed and tested in accordance with the EC Certificate of Conformity and has left the manufacturer's plant in a condition fully complying with safety standards. To maintain this condition and to ensure safe operation, observe all instructions and warnings provided in this manual. If you have any questions regarding these safety instructions, the Rohde & Schwarz group of companies will be happy to answer them.

Furthermore, it is your responsibility to use the product in an appropriate manner. This product is designed for use solely in industrial and laboratory environments or, if expressly permitted, also in the field and must not be used in any way that may cause personal injury or property damage. You are responsible if the product is used for an intention other than its designated purpose or in disregard of the manufacturer's instructions. The manufacturer shall assume no responsibility for such use of the product.

The product is used for its designated purpose if it is used in accordance with its product documentation and within its performance limits (see data sheet, documentation, the following safety instructions). Using the product requires technical skills and a basic knowledge of English. It is therefore essential that only skilled and specialized staff or thoroughly trained personnel with the required skills be allowed to use the product. If personal safety gear is required for using Rohde & Schwarz products, this will be indicated at the appropriate place in the product documentation. Keep the basic safety instructions and the product documentation in a safe place and pass them on to the subsequent users.

## Symbols and safety labels

							
Observe product documentation	Weight indication for units >18 kg	Danger of electric shock	Warning! Hot surface	PE terminal	Ground	Ground terminal	Attention! Electrostatic sensitive devices

					
Supply voltage ON/OFF	Standby indication	Direct current (DC)	Alternating current (AC)	Direct/alternating current (DC/AC)	Device fully protected by double/reinforced insulation

Observing the safety instructions will help prevent personal injury or damage of any kind caused by dangerous situations. Therefore, carefully read through and adhere to the following safety instructions before putting the product into operation. It is also absolutely essential to observe the additional safety instructions on personal safety that appear in relevant parts of the product documentation. In these safety instructions, the word "product" refers to all merchandise sold and distributed by the Rohde & Schwarz group of companies, including instruments, systems and all accessories.

## Tags and their meaning

DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	NOTICE indicates a property damage message. In the product documentation, the word ATTENTION is used synonymously.

These tags are in accordance with the standard definition for civil applications in the European Economic Area. Definitions that deviate from the standard definition may also exist in other economic areas or military applications. It is therefore essential to make sure that the tags described here are always used only in connection with the related product documentation and the related product. The use of tags in connection with unrelated products or documentation can result in misinterpretation and thus contribute to personal injury or material damage.

## Basic safety instructions

1. The product may be operated only under the operating conditions and in the positions specified by the manufacturer. Its ventilation must not be obstructed during operation. Unless otherwise specified, the following requirements apply to Rohde & Schwarz products:  
prescribed operating position is always with the housing floor facing down, IP protection 2X, pollution severity 2, overvoltage category 2, use only in enclosed spaces, max. operation altitude 2000 m above sea level, max. transport altitude 4500 m above sea level.  
A tolerance of  $\pm 10\%$  shall apply to the nominal voltage and of  $\pm 5\%$  to the nominal frequency.
2. Applicable local or national safety regulations and rules for the prevention of accidents must be observed in all work performed. The product may be opened only by authorized, specially trained personnel. Prior to performing any work on the product or opening the product, the product must be disconnected from the supply network. Any adjustments, replacements of parts, maintenance or repair must be carried out only by technical personnel authorized by Rohde & Schwarz. Only original parts may be used for replacing parts relevant to safety (e.g. power switches, power transformers, fuses). A safety test must always be performed after parts relevant to safety have been replaced (visual inspection, PE conductor test, insulation resistance measurement, leakage current measurement, functional test).
3. As with all industrially manufactured goods, the use of substances that induce an allergic reaction (allergens, e.g. nickel) such as aluminum cannot be generally excluded. If you develop an allergic reaction (such as a skin rash, frequent sneezing, red eyes or respiratory difficulties), consult a physician immediately to determine the cause.
4. If products/components are mechanically and/or thermally processed in a manner that goes beyond their intended use, hazardous substances (heavy-metal dust such as lead, beryllium, nickel) may be released. For this reason, the product may only be disassembled, e.g. for disposal purposes, by specially trained personnel. Improper disassembly may be hazardous to your health. National waste disposal regulations must be observed.

5. If handling the product yields hazardous substances or fuels that must be disposed of in a special way, e.g. coolants or engine oils that must be replenished regularly, the safety instructions of the manufacturer of the hazardous substances or fuels and the applicable regional waste disposal regulations must be observed. Also observe the relevant safety instructions in the product documentation.
6. Depending on the function, certain products such as RF radio equipment can produce an elevated level of electromagnetic radiation. Considering that unborn life requires increased protection, pregnant women should be protected by appropriate measures. Persons with pacemakers may also be endangered by electromagnetic radiation. The employer/operator is required to assess workplaces where there is a special risk of exposure to radiation and, if necessary, take measures to avert the danger.
7. Operating the products requires special training and intense concentration. Make certain that persons who use the products are physically, mentally and emotionally fit enough to handle operating the products; otherwise injuries or material damage may occur. It is the responsibility of the employer to select suitable personnel for operating the products.
8. Prior to switching on the product, it must be ensured that the nominal voltage setting on the product matches the nominal voltage of the AC supply network. If a different voltage is to be set, the power fuse of the product may have to be changed accordingly.
9. In the case of products of safety class I with movable power cord and connector, operation is permitted only on sockets with earthing contact and protective earth connection.
10. Intentionally breaking the protective earth connection either in the feed line or in the product itself is not permitted. Doing so can result in the danger of an electric shock from the product. If extension cords or connector strips are implemented, they must be checked on a regular basis to ensure that they are safe to use.
11. If the product has no power switch for disconnection from the AC supply, the plug of the connecting cable is regarded as the disconnecting device. In such cases, it must be ensured that the power plug is easily reachable and accessible at all times (corresponding to the length of connecting cable, approx. 2 m). Functional or electronic switches are not suitable for providing disconnection from the AC supply. If products without power switches are integrated in racks or systems, a disconnecting device must be provided at the system level.
12. Never use the product if the power cable is damaged. Check the power cable on a regular basis to ensure that it is in proper operating condition. By taking appropriate safety measures and carefully laying the power cable, ensure that the cable cannot be damaged and that no one can be hurt by e.g. tripping over the cable or suffering an electric shock.
13. The product may be operated only from TN/TT supply networks fused with max. 16 A (higher fuse only after consulting with the Rohde & Schwarz group of companies).
14. Do not insert the plug into sockets that are dusty or dirty. Insert the plug firmly and all the way into the socket. Otherwise, this can result in sparks, fire and/or injuries.
15. Do not overload any sockets, extension cords or connector strips; doing so can cause fire or electric shocks.
16. For measurements in circuits with voltages  $V_{\text{rms}} > 30 \text{ V}$ , suitable measures (e.g. appropriate measuring equipment, fusing, current limiting, electrical separation, insulation) should be taken to avoid any hazards.
17. Ensure that the connections with information technology equipment comply with IEC 950/EN 60950.
18. Unless expressly permitted, never remove the cover or any part of the housing while the product is in operation. Doing so will expose circuits and components and can lead to injuries, fire or damage to the product.
19. If a product is to be permanently installed, the connection between the PE terminal on site and the product's PE conductor must be made first before any other connection is made. The product may be installed and connected only by a license electrician.

## Grouped Safety Messages

20. For permanently installed equipment without built-in fuses, circuit breakers or similar protective devices, the supply circuit must be fused in such a way that suitable protection is provided for users and products.
21. Do not insert any objects into the openings in the housing that are not designed for this purpose. Never pour any liquids onto or into the housing. This can cause short circuits inside the product and/or electric shocks, fire or injuries.
22. Use suitable overvoltage protection to ensure that no overvoltage (such as that caused by a thunderstorm) can reach the product. Otherwise the operating personnel will be endangered by electric shocks.
23. Rohde & Schwarz products are not protected against penetration of liquids, unless otherwise specified (see also safety instruction 1.). If this is not taken into account, there exists the danger of electric shock for the user or damage to the product, which can also lead to personal injury.
24. Never use the product under conditions in which condensation has formed or can form in or on the product, e.g. if the product was moved from a cold to a warm environment.
25. Do not close any slots or openings on the product, since they are necessary for ventilation and prevent the product from overheating. Do not place the product on soft surfaces such as sofas or rugs or inside a closed housing, unless this is well ventilated.
26. Do not place the product on heat-generating devices such as radiators or fan heaters. The temperature of the environment must not exceed the maximum temperature specified in the data sheet.
27. Batteries and storage batteries must not be exposed to high temperatures or fire. Keep batteries and storage batteries away from children. Do not short-circuit batteries and storage batteries.  
If batteries or storage batteries are improperly replaced, this can cause an explosion (warning: lithium cells). Replace the battery or storage battery only with the matching Rohde & Schwarz type (see spare parts list). Batteries and storage batteries must be recycled and kept separate from residual waste. Batteries and storage batteries that contain lead, mercury or cadmium are hazardous waste. Observe the national regulations regarding waste disposal and recycling.
28. Please be aware that in the event of a fire, toxic substances (gases, liquids etc.) that may be hazardous to your health may escape from the product.
29. The product can be very heavy. Be careful when moving it to avoid back or other physical injuries.
30. Do not place the product on surfaces, vehicles, cabinets or tables that for reasons of weight or stability are unsuitable for this purpose. Always follow the manufacturer's installation instructions when installing the product and fastening it to objects or structures (e.g. walls and shelves).
31. Handles on the products are designed exclusively for personnel to hold or carry the product. It is therefore not permissible to use handles for fastening the product to or on means of transport such as cranes, fork lifts, wagons, etc. The user is responsible for securely fastening the products to or on the means of transport and for observing the safety regulations of the manufacturer of the means of transport. Noncompliance can result in personal injury or material damage.
32. If you use the product in a vehicle, it is the sole responsibility of the driver to drive the vehicle safely. Adequately secure the product in the vehicle to prevent injuries or other damage in the event of an accident. Never use the product in a moving vehicle if doing so could distract the driver of the vehicle. The driver is always responsible for the safety of the vehicle. The manufacturer assumes no responsibility for accidents or collisions.
33. If a laser product (e.g. a CD/DVD drive) is integrated in a Rohde & Schwarz product, do not use any other settings or functions than those described in the product documentation. Otherwise this may be hazardous to your health, since the laser beam can cause irreversible damage to your eyes. Never try to take such products apart, and never look into the laser beam.
34. Prior to cleaning, disconnect the product from the AC supply. Use a soft, non-linting cloth to clean the product. Never use chemical cleaning agents such as alcohol, acetone or diluent for cellulose lacquers.

# Informaciones elementales de seguridad

**¡Es imprescindible leer y observar las siguientes instrucciones e informaciones de seguridad!**







El principio del grupo de empresas Rohde & Schwarz consiste en tener nuestros productos siempre al día con los estándares de seguridad y de ofrecer a nuestros clientes el máximo grado de seguridad. Nuestros productos y todos los equipos adicionales son siempre fabricados y examinados según las normas de seguridad vigentes. Nuestra sección de gestión de la seguridad de calidad controla constantemente que sean cumplidas estas normas. El presente producto ha sido fabricado y examinado según el comprobante de conformidad adjunto según las normas de la CE y ha salido de nuestra planta en estado impecable según los estándares técnicos de seguridad. Para poder preservar este estado y garantizar un funcionamiento libre de peligros, el usuario deberá atenerse a todas las indicaciones, informaciones de seguridad y notas de alerta. El grupo de empresas Rohde & Schwarz está siempre a su disposición en caso de que tengan preguntas referentes a estas informaciones de seguridad.

Además queda en la responsabilidad del usuario utilizar el producto en la forma debida. Este producto está destinado exclusivamente al uso en la industria y el laboratorio o, si ha sido expresamente autorizado, para aplicaciones de campo y de ninguna manera deberá ser utilizado de modo que alguna persona/cosa pueda sufrir daño. El uso del producto fuera de sus fines definidos o despreciando las informaciones de seguridad del fabricante queda en la responsabilidad del usuario. El fabricante no se hace en ninguna forma responsable de consecuencias a causa del mal uso del producto.

Se parte del uso correcto del producto para los fines definidos si el producto es utilizado dentro de las instrucciones de la correspondiente documentación de producto y dentro del margen de rendimiento definido (ver hoja de datos, documentación, informaciones de seguridad que siguen). El uso del producto hace necesarios conocimientos profundos y conocimientos básicas del idioma inglés. Por eso se debe tener en cuenta que el producto sólo pueda ser operado por personal especializado o personas minuciosamente instruidas con las capacidades correspondientes. Si fuera necesaria indumentaria de seguridad para el uso de productos de R&S, encontrará la información debida en la documentación del producto en el capítulo correspondiente. Guarde bien las informaciones de seguridad elementales, así como la documentación del producto y entréguela a usuarios posteriores.

## Símbolos y definiciones de seguridad

							
Ver documentación de producto	Informaciones para maquinaria con un peso de > 18kg	Peligro de golpe de corriente	¡Advertencia! Superficie caliente	Conexión a conductor protector	Conexión a tierra	Conexión a masa conductora	¡Cuidado! Elementos de construcción con peligro de carga electrostática

					
Potencia EN MARCHA/PARADA	Indicación Stand-by	Corriente continua DC	Corriente alterna AC	Corriente continua/- alterna DC/AC	El aparato está protegido en su totalidad por un aislamiento de doble refuerzo

Tener en cuenta las informaciones de seguridad sirve para tratar de evitar daños y peligros de toda clase. Es necesario de que se lean las siguientes informaciones de seguridad concienzudamente y se tengan en cuenta debidamente antes de la puesta en funcionamiento del producto. También deberán ser tenidas en cuenta las informaciones para la protección de personas que encontrarán en el capítulo correspondiente de la documentación de producto y que también son obligatorias de seguir. En las informaciones de seguridad actuales hemos juntado todos los objetos vendidos por el grupo de empresas Rohde & Schwarz bajo la denominación de „producto“, entre ellos también aparatos, instalaciones así como toda clase de accesorios.

### Palabras de señal y su significado

PELIGRO	Identifica un peligro directo con riesgo elevado de provocar muerte o lesiones de gravedad si no se toman las medidas oportunas.
ADVERTENCIA	Identifica un posible peligro con riesgo medio de provocar muerte o lesiones (de gravedad) si no se toman las medidas oportunas.
ATENCIÓN	Identifica un peligro con riesgo reducido de provocar lesiones de gravedad media o leve si no se toman las medidas oportunas.
AVISO	Indica la posibilidad de utilizar mal el producto y a consecuencia dañarlo.

En la documentación del producto se emplea de forma sinónima el término CUIDADO.

Las palabras de señal corresponden a la definición habitual para aplicaciones civiles en el área económica europea. Pueden existir definiciones diferentes a esta definición en otras áreas económicas o en aplicaciones militares. Por eso se deberá tener en cuenta que las palabras de señal aquí descritas sean utilizadas siempre solamente en combinación con la correspondiente documentación de producto y solamente en combinación con el producto correspondiente. La utilización de las palabras de señal en combinación con productos o documentaciones que no les correspondan puede llevar a malinterpretaciones y tener por consecuencia daños en personas u objetos.

### Informaciones de seguridad elementales

1. El producto solamente debe ser utilizado según lo indicado por el fabricante referente a la situación y posición de funcionamiento sin que se obstruya la ventilación. Si no se convino de otra manera, es para los productos R&S válido lo que sigue:  
como posición de funcionamiento se define por principio la posición con el suelo de la caja para abajo, modo de protección IP 2X, grado de suciedad 2, categoría de sobrecarga eléctrica 2, utilizar solamente en estancias interiores, utilización hasta 2000 m sobre el nivel del mar, transporte hasta 4.500 m sobre el nivel del mar.  
Se aplicará una tolerancia de  $\pm 10\%$  sobre el voltaje nominal y de  $\pm 5\%$  sobre la frecuencia nominal.
2. En todos los trabajos deberán ser tenidas en cuenta las normas locales de seguridad de trabajo y de prevención de accidentes. El producto solamente debe de ser abierto por personal especializado autorizado. Antes de efectuar trabajos en el producto o abrirlo deberá este ser desconectado de la corriente. El ajuste, el cambio de partes, la manutención y la reparación deberán ser solamente efectuadas por electricistas autorizados por R&S. Si se reponen partes con importancia para los aspectos de seguridad (por ejemplo el enchufe, los transformadores o los fusibles), solamente podrán ser sustituidos por partes originales. Después de cada recambio de partes elementales para la seguridad deberá ser efectuado un control de seguridad (control a primera vista, control de conductor protector, medición de resistencia de aislamiento, medición de la corriente conductora, control de funcionamiento).



3. Como en todo producto de fabricación industrial no puede ser excluido en general de que se produzcan al usarlo elementos que puedan generar alergias, los llamados elementos alergénicos (por ejemplo el níquel). Si se produjeran en el trato con productos R&S reacciones alérgicas, como por ejemplo urticaria, estornudos frecuentes, irritación de la conjuntiva o dificultades al respirar, se deberá consultar inmediatamente a un médico para averiguar los motivos de estas reacciones.
  4. Si productos / elementos de construcción son tratados fuera del funcionamiento definido de forma mecánica o térmica, pueden generarse elementos peligrosos (polvos de sustancia de metales pesados como por ejemplo plomo, berilio, níquel). La partición elemental del producto, como por ejemplo sucede en el tratamiento de materias residuales, debe de ser efectuada solamente por personal especializado para estos tratamientos. La partición elemental efectuada inadecuadamente puede generar daños para la salud. Se deben tener en cuenta las directivas nacionales referentes al tratamiento de materias residuales.
  5. En el caso de que se produjeran agentes de peligro o combustibles en la aplicación del producto que debieran de ser transferidos a un tratamiento de materias residuales, como por ejemplo agentes refrigerantes que deben ser repuestos en periodos definidos, o aceites para motores, deberán ser tenidas en cuenta las prescripciones de seguridad del fabricante de estos agentes de peligro o combustibles y las regulaciones regionales para el tratamiento de materias residuales. Cuiden también de tener en cuenta en caso dado las prescripciones de seguridad especiales en la descripción del producto.
  6. Ciertos productos, como por ejemplo las instalaciones de radiocomunicación RF, pueden a causa de su función natural, emitir una radiación electromagnética aumentada. En vista a la protección de la vida en desarrollo deberían ser protegidas personas embarazadas debidamente. También las personas con un bypass pueden correr peligro a causa de la radiación electromagnética.
- El empresario/usuario está comprometido a valorar y señalar áreas de trabajo en las que se corra un riesgo aumentado de exposición a radiaciones para evitar riesgos.
7. La utilización de los productos requiere instrucciones especiales y una alta concentración en el manejo. Debe de ponerse por seguro de que las personas que manejen los productos estén a la altura de los requerimientos necesarios referente a sus aptitudes físicas, psíquicas y emocionales, ya que de otra manera no se pueden excluir lesiones o daños de objetos. El empresario lleva la responsabilidad de seleccionar el personal usuario apto para el manejo de los productos.
  8. Antes de la puesta en marcha del producto se deberá tener por seguro de que la tensión preseleccionada en el producto equivalga a la del la red de distribución. Si es necesario cambiar la preselección de la tensión también se deberán en caso dabo cambiar los fusibles correspondientes del producto.
  9. Productos de la clase de seguridad I con alimentación móvil y enchufe individual de producto solamente deberán ser conectados para el funcionamiento a tomas de corriente de contacto de seguridad y con conductor protector conectado.
  10. Queda prohibida toda clase de interrupción intencionada del conductor protector, tanto en la toma de corriente como en el mismo producto. Puede tener como consecuencia el peligro de golpe de corriente por el producto. Si se utilizaran cables o enchufes de extensión se deberá poner al seguro que es controlado su estado técnico de seguridad.
  11. Si el producto no está equipado con un interruptor para desconectarlo de la red, se deberá considerar el enchufe del cable de distribución como interruptor. En estos casos deberá asegurar de que el enchufe sea de fácil acceso y nabejo (según la medida del cable de distribución, aproximadamente 2 m). Los interruptores de función o electrónicos no son aptos para el corte de la red eléctrica. Si los productos sin interruptor están integrados en bastidores o instalaciones, se deberá instalar el interruptor al nivel de la instalación.

12. No utilice nunca el producto si está dañado el cable eléctrico. Compruebe regularmente el correcto estado de los cables de conexión a red. Asegure a través de las medidas de protección y de instalación adecuadas de que el cable de eléctrico no pueda ser dañado o de que nadie pueda ser dañado por él, por ejemplo al tropezar o por un golpe de corriente.
13. Solamente está permitido el funcionamiento en redes de distribución TN/TT aseguradas con fusibles de como máximo 16 A (utilización de fusibles de mayor amperaje sólo previa consulta con el grupo de empresas Rohde & Schwarz).
14. Nunca conecte el enchufe en tomas de corriente sucias o llenas de polvo. Introduzca el enchufe por completo y fuertemente en la toma de corriente. Si no tiene en consideración estas indicaciones se arriesga a que se originen chispas, fuego y/o heridas.
15. No sobrecargue las tomas de corriente, los cables de extensión o los enchufes de extensión ya que esto pudiera causar fuego o golpes de corriente.
16. En las mediciones en circuitos de corriente con una tensión de entrada de  $U_{eff} > 30$  V se deberá tomar las precauciones debidas para impedir cualquier peligro (por ejemplo medios de medición adecuados, seguros, limitación de tensión, corte protector, aislamiento etc.).
17. En caso de conexión con aparatos de la técnica informática se deberá tener en cuenta que estos cumplan los requisitos del estándar IEC950/EN60950.
18. A menos que esté permitido expresamente, no retire nunca la tapa ni componentes de la carcasa mientras el producto esté en servicio. Esto pone a descubierto los cables y componentes eléctricos y puede causar heridas, fuego o daños en el producto.
19. Si un producto es instalado fijamente en un lugar, se deberá primero conectar el conductor protector fijo con el conductor protector del aparato antes de hacer cualquier otra conexión. La instalación y la conexión deberán ser efectuadas por un electricista especializado.
20. En caso de que los productos que son instalados fijamente en un lugar sean sin protector implementado, autointerruptor o similares objetos de protección, el circuito de suministro de corriente deberá estar protegido de manera que usuarios y productos estén suficientemente protegidos.
21. Por favor, no introduzca ningún objeto que no esté destinado a ello en los orificios de la caja del aparato. No vierta nunca ninguna clase de líquidos sobre o en la caja. Esto puede producir cortocircuitos en el producto y/o puede causar golpes de corriente, fuego o heridas.
22. Asegúrese con la protección adecuada de que no pueda originarse en el producto una sobrecarga por ejemplo a causa de una tormenta. Si no se verá el personal que lo utilice expuesto al peligro de un golpe de corriente.
23. Los productos R&S no están protegidos contra líquidos si no es que exista otra indicación, ver también punto 1. Si no se tiene en cuenta esto se arriesga el peligro de golpe de corriente para el usuario o de daños en el producto lo cual también puede llevar al peligro de personas.
24. No utilice el producto bajo condiciones en las que pueda producirse y se hayan producido líquidos de condensación en o dentro del producto como por ejemplo cuando se desplaza el producto de un lugar frío a un lugar caliente.
25. Por favor no cierre ninguna ranura u orificio del producto, ya que estas son necesarias para la ventilación e impiden que el producto se caliente demasiado. No pongan el producto encima de materiales blandos como por ejemplo sofás o alfombras o dentro de una caja cerrada, si esta no está suficientemente ventilada.
26. No ponga el producto sobre aparatos que produzcan calor, como por ejemplo radiadores o calentadores. La temperatura ambiental no debe superar la temperatura máxima especificada en la hoja de datos.

27. Baterías y acumuladores no deben de ser expuestos a temperaturas altas o al fuego. Guardar baterías y acumuladores fuera del alcance de los niños. No cortocircuitar baterías ni acumuladores. Si las baterías o los acumuladores no son cambiados con la debida atención existirá peligro de explosión (atención células de litio). Cambiar las baterías o los acumuladores solamente por los del tipo R&S correspondiente (ver lista de piezas de recambio). Las baterías y acumuladores deben reutilizarse y no deben acceder a los vertederos. Las baterías y acumuladores que contienen plomo, mercurio o cadmio deben tratarse como residuos especiales. Respete en esta relación las normas nacionales de evacuación y reciclaje.
28. Por favor tengan en cuenta que en caso de un incendio pueden desprenderse del producto agentes venenosos (gases, líquidos etc.) que pueden generar daños a la salud.
29. El producto puede poseer un peso elevado. Muévelo con cuidado para evitar lesiones en la espalda u otras partes corporales.
30. No sitúe el producto encima de superficies, vehículos, estantes o mesas, que por sus características de peso o de estabilidad no sean aptas para él. Siga siempre las instrucciones de instalación del fabricante cuando instale y asegure el producto en objetos o estructuras (por ejemplo paredes y estantes).
31. Las asas instaladas en los productos sirven solamente de ayuda para el manejo que solamente está previsto para personas. Por eso no está permitido utilizar las asas para la sujeción en o sobre medios de transporte como por ejemplo grúas, carretillas elevadoras de horquilla, carros etc. El usuario es responsable de que los productos sean sujetados de forma segura a los medios de transporte y de que las prescripciones de seguridad del fabricante de los medios de transporte sean observadas. En caso de que no se tengan en cuenta pueden causarse daños en personas y objetos.
32. Si llega a utilizar el producto dentro de un vehículo, queda en la responsabilidad absoluta del conductor que conducir el vehículo de manera segura. Asegure el producto dentro del vehículo debidamente para evitar en caso de un accidente las lesiones u otra clase de daños. No utilice nunca el producto dentro de un vehículo en movimiento si esto pudiera distraer al conductor. Siempre queda en la responsabilidad absoluta del conductor la seguridad del vehículo. El fabricante no asumirá ninguna clase de responsabilidad por accidentes o colisiones.
33. Dado el caso de que esté integrado un producto de láser en un producto R&S (por ejemplo CD/DVD-ROM) no utilice otras instalaciones o funciones que las descritas en la documentación de producto. De otra manera pondrá en peligro su salud, ya que el rayo láser puede dañar irreversiblemente sus ojos. Nunca trate de descomponer estos productos. Nunca mire dentro del rayo láser.
34. Antes de proceder a la limpieza, desconecte el producto de la red. Realice la limpieza con un paño suave, que no se deshilache. No utilice de ninguna manera agentes limpiadores químicos como, por ejemplo, alcohol, acetona o nitrodiluyente.



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# Digital Standard 1xEV-DO

## Introduction - Digital Standard 1xEV-DO

The R&S Signal Generator provides you with the ability to generate signals in accordance with the standard CDMA2000 1xEV-DO (Evolution-Data Optimized), Rev. A. CDMA2000 1xEV-DO is the North American standard for the third mobile radio generation (3G). CDMA2000 1xEV-DO is a high-speed packet-switched transmission technique with forward peak data rates of 3.1 Mbps, designed and optimized for a data-centric broadband network.

The R&S Signal Generator simulates 1xEV-DO at the physical layer. The following list gives an overview of the main options provided by the R&S Signal Generator for generating a 1xEV-DO signal in accordance with 3GPP2 C.S0024-A.v3.0.

- ◆ Generation of 1xEV-DO signals with a chip rate of 1.2288 Mcps
- ◆ Independent configuration of up to 4 traffic channels or 4 access terminals
- ◆ Support of physical layer subtypes 0, 1 and 2
- ◆ Operating modes "Traffic" and "Access" on the uplink
- ◆ Simulation of up to 110 additional MAC users
- ◆ Generation of standard compliant forward/downlink and reverse/uplink channel types
- ◆ Supports configuration of public data as defined in the standard, such as Long Code Masks for I and Q channel, PreambleLength, DRCLength etc.
- ◆ Filling the data files for data channels from all possible sources of the R&S Signal Generator: pattern (all1, all0, user-defined up to 64 bits), PN data or data lists
- ◆ Clipping for reducing the crest factor

The following table gives an overview of parameters of the modulation system 1xEV-DO.

Parameter	Value
Chip rate	1.2288 Mcps
Channel Types	Forward link: <ul style="list-style-type: none"> <li>• Pilot Channel</li> <li>• Forward Traffic Channel (Rev. A)</li> <li>• Reverse Activity</li> <li>• DRCLock</li> <li>• Reverse Power Control</li> <li>• ARQ (Rev. A)</li> <li>• Control Channel</li> </ul> Reverse link, access mode: <ul style="list-style-type: none"> <li>• Pilot Channel</li> <li>• Data Channel</li> </ul> Reverse link, traffic mode: <ul style="list-style-type: none"> <li>• Pilot Channel</li> <li>• Auxiliary Pilot Channel (Rev. A)</li> <li>• Reverse Rate Indicator</li> <li>• Data Rate Control</li> <li>• Data Source Control (Rev. A)</li> <li>• ACK Channel</li> <li>• Data Channel</li> </ul>
Data rates	Forward link: <ul style="list-style-type: none"> <li>• 38.4 to 2457.6 kbps (Rev. 0)</li> <li>• 4 to 3072 kbps (Rev. A)</li> </ul> Reverse link: <ul style="list-style-type: none"> <li>• 9 to 153.6 kbps (Rev. 0)</li> <li>• 4 to 1843.2 kbps (Rev. A)</li> </ul>
Frame length	26.67 ms (1 frame = 16 slots)
Slot duration	1.67 ms (1 slot = 2048 PN chips)
PN offset	0 to 511
Channel coding	All channel coding modes defined in the standard (channel encoding, block interleaving, repetition, modulation, orthogonal spreading by Walsh function)
Modulation	BPSK, QPSK, 8PSK, 16QAM
Multi-code modulation	B4, Q2, Q4, Q4Q2, E4E2
Long Code Mask	Separate Long Code Masks for I and Q channel.  The Long Code Generator is reloaded at every PN rollover with 0x24B91BFD3A8.
Walsh covers	Different Walsh functions for the different channels

Table 1 Parameters of the modulation system 1xEV-DO



## R&S Signal Generator Specific Information

The different topics discussed in the following paragraphs give essential information for better understanding and effective work with R&S signal generator equipped with option Digital Standard 1xEV-DO.

### Traffic Scheduling Process

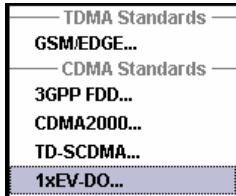
Since the Forward Link of a 1xEV-DO system is governed by a time division multiple access technique, access to Forward Link bandwidth by a user channel is governed by a scheduling process. The schedule process determines who gets access to Forward Link slots to carry user data.

The traffic scheduling process for this signal generator follows a number of rules to schedule which user's data is sent for each slot. The rules are listed in order of priority, with the highest priority rules being listed first. In the event that two rules contradict each other, the circumstances invoking the lower priority rule must be altered to resolve the contradiction.

- ◆ A channel with State set to OFF is never transmitted.
- ◆ The first slot of the control channel packet is always transmitted at its specified offset at the start of the control channel cycle.
- ◆ Once the first slot of a multiple slot packet is sent, the remaining slots are always transmitted with the proper interlace (3 slots skipped after 1 slot sent).
- ◆ Packets for a user can be transmitted on 1 to 4 interlaces (there are a total of 4 interlaces in the 1xEV-DO system). Packets on the different interlaces will be duplicates of those sent on the other interlaces for a given user. The interleave factor user interface parameter is used to control the number of interlaces used for each user.
- ◆ Immediately after the transmission of the last slot of a multiple slot packet, a lockout period of three slots is created. No additional packets from the same source may be scheduled before the three slot period expires.
- ◆ A control channel packet has priority over all other traffic channels. This may exclude transmission of user channels in advance of the control channel packet, if the other channel would require a slot that the control channel packet would require.
- ◆ User1 traffic has priority over User2, User3, and User4 traffic.
- ◆ User2 traffic has priority over User3 and User4 traffic.
- ◆ User3 traffic has priority over User4 traffic.
- ◆ If no traffic is scheduled for a slot, an idle slot will be transmitted.

# 1xEV-DO Menu

The menu for setting the 1xEV-DO digital standard is either called from the baseband block or from the menu tree under Baseband.

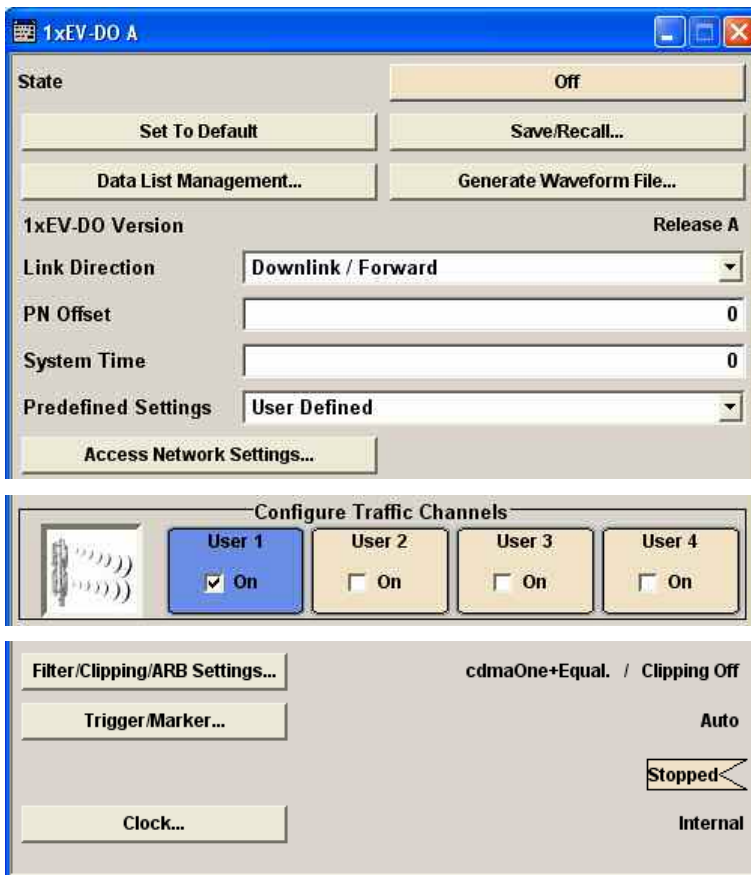


The menu is split into three sections for configuring the standard. The choice of transmission direction determines which displays and parameters are made available in the middle section.

The upper section of the menu is where the 1xEV-DO digital standard is enabled, the default settings are called, the transmission direction selected and where the valid 1xEV-DO version is displayed.

Many of the buttons lead to submenus for loading and saving the 1xEV-DO configuration and for setting the filter, trigger and clock parameters.

The middle menu section is where either the traffic channels per user or the access terminals are configured, depending on the transmission direction selected.



## General Settings for 1xEV-DO Signals

The upper menu section is where the 1xEV-DO digital standard is enabled and reset and where all the settings valid for the signal in both transmission directions are made.

### State - 1xEV-DO

Enables/disables the 1xEV-DO standard.

Enabling this standard disables all the other digital standards and digital modulation modes (in case of two-path instruments, this affects the same path).

Remote-control command:

SOUR:BB:EVDO:STAT ON

### Set to Default - 1xEV-DO

Calls the default settings. The following table gives an overview of the settings. The preset value for each parameter is specified in the description of the remote-control commands.

Remote-control command:

SOUR:BB:EVDO:PRES

Parameter	Value
State	Not affected by Set to default
Link Direction	Downlink/ Forward
PN Offset	0
System Time	0
Predefined Settings	User Defined
Filter	CdmaOne + Equalizer
Clipping	Off
Trigger	Auto
Clock	Internal
<b>Access Network Settings</b>	
Physical Layer Subtype	2
Continuous Pilot Mode	Off
Pilot Channel	
Pilot Channel State	On
Control Channel	
State	Off
Rate	38.4 kbps
Offset	0
Minimum Revision	1
Maximum Revision	1
Reverse Activity Bit (MAC)	
State	Off
RAB Level	-7.0 dB
Other User Count	1
<b>Traffic Channels Configuration</b>	
State	On (User 1)   Off
Physical Layer Subtype	2

Parameter	Value
Number of Packets to Send	65536
Infinite	On
Packet Size	128
Data Rate	4.8 kbps
Slot Count	16
Data Pattern (hex)	0000 0000
MAC Index	6
MAC Level	-7.0 dB
Interleave Factor	1
RPC (MAC)	
Mode	Hold
Pattern	Zone 0..3: Bit=0, Count=1
DRC Lock (MAC)	
State	Off
Period	4
Length	1
Frame Offset	0
ARQ (MAC)	
H-ARQ Mode	Off
<b>Access Terminals Configuration</b>	
State	On (Terminal 1)   Off
Mode	Traffic
Physical Layer Subtype	2
Disable Quadr. Spreading	Off
Long Code Mask I (hex)	0000 0000 000
Long Code Mask Q (hex)	0000 0000 000
Pilot Channel	
State	On
Gain	0 dB
Auxiliary Pilot Channel	
State	On
Relative Gain	0 dB
Minimum Payload (bits)	128
RRI Channel	
State	On
Relative Gain	0 dB
DSC Channel	
State	On
Relative Gain	0 dB
Length (slots)	8
Value (oct)	0
DRC Channel	
State	On
Relative Gain	0 dB

Parameter	Value
Length	1
Value (hex)	0
Cover	7
Gating Active	On
ACK Channel	
State	On
Relative Gain	0 dB
Mode	BPSK
Gating (bin)	0001
Values (bin)	01
Data Channel	
State	On
Rel. Gain /dB	0
Infinet Packets	On
Packets To Send	65 536
Sub-packets	1
Payload Size / bits	128
Mod	B4
Data rate	0
Chan. Cod.	On
Data Source	PN9
DList/ Pattern	-
FCS	On

**Save/Recall to - 1xEV-DO**

Calls the **Save/Recall** menu.

From the **Save/Recall** menu the **Save/Recall Settings** windows for saving and recalling 1xEV-DO configurations and the **File Manager** can be called.



1xEV-DO configurations are stored as files with the predefined file extension \*.1xevdo. The file name and the directory they are stored in are user-definable.

The complete settings in the **1xEV-DO** menu are saved and recalled.

**Recall 1xEV-DO Setting** Opens the **Recall Settings** window for loading a saved 1xEV-DO configuration.

The configuration of the selected (highlighted) file is loaded by pressing the **Select** button.

Remote-control commands::

```
:MMEM:CDIR 'D:\user\1xEVDO'
```

```
SOUR:BB:EVDO:SETT:CAT?
```

```
Response: '1xEVDO_1',1xEVDO_2'
```

```
SOUR:BB:EVDO:SETT:LOAD '1xEVDO_1'
```

**Save 1xEV-DO Setting** Opens the **Save Settings** window for saving the current 1xEV-DO signal configuration.

The name of the file is specified in the File name entry field, the directory selected in the save into field. The file is saved by pressing the **Save** button.

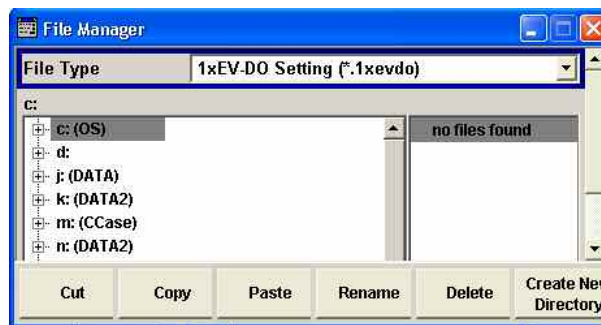
Remote-control commands:

```
:MMEM:CDIR 'D:\user\1xEVDO'
```

```
SOUR:BB:EVDO:SETT:STOR '1xEVDO_1'
```

**File Manager** Calls the **File Manager**.

The **File Manager** is used to copy, delete and rename files and to create new directories.



Remote-control commands:

```
:MMEM:CDIR 'D:\user\1xEVDO'
```

```
SOUR:BB:EVDO:SETT:DEL '1xEVDO_1'
```

### Data List Management - 1xEV-DO

Calls the **Data List Management** menu. This menu is used to create and edit a data list.



All data lists are stored as files with the predefined file extension **\*.dm\_iqd**. The file name and the directory they are stored in are user-definable.

The data lists must be selected as a data source from the submenus under the individual function.

Remote-control commands:

---

#### Note:

*All data lists are generated and edited by means of the SOURce:BB:DM subsystem commands. Files containing data lists usually end with \*.dm\_iqd. The data lists are selected as a data source for a specific function in the individual subsystems of the digital standard.*

---

Creating and editing the data list:

```
SOUR:BB:DM:DLIS:SEL "d_list1"
SOUR:BB:DM:DLIS:DATA #B1111010101000001111....
SOUR:BB:DM:DLIS:DATA:APP #B1111010101000001111....
```

Selecting the data list:

```
SOUR:BB:EVDO:TERM2:DCH:DATA DLIS
SOUR:BB:EVDO:TERM2:DCH:DATA:DSEL 'datalist.dm_iqd'

SOUR:BB:EVDO:TERM2:DCH:PACK:DATA DLIS
SOUR:BB:EVDO:TERM2:DCH:PACK:DATA:DSEL
'datalist.dm_iqd'
```

### Generate Waveform File - 1xEV-DO

Opens the submenu for storing the current 1xEV-DO signal as ARB signal in a waveform file. This file can be loaded in the ARB menu and processed as multicarrier or multisegment signal.

The file name is entered in the submenu. The file is stored with the predefined file extension **\*.wv**. The file name and the directory it is stored in are user-definable.

Remote-control command:

```
SOUR:BB:EVDO:WAV:CRE '1xEVDO_wv'
```

### 1xEV-DO Version - 1xEV-DO

Displays the current version of the 1xEV-DO standard.

The default settings and parameters provided are oriented towards the specifications of the version displayed.

Remote-control command:

```
SOUR:BB:EVDO:VERS?
```

Response: Release A

<b>Link Direction - 1xEV-DO</b>	<p>Selects the transmission direction.</p> <p>The settings of the traffic channels per user and the access terminals are provided in the following menu section in accordance with the selection.</p>
	<p><b>Downlink/ Forward</b></p> <p>The transmission direction selected is base station to access terminal. The signal corresponds to that of a base station.</p> <p>Remote-control command: SOUR:BB:EVDO:LINK DOWN</p>
	<p><b>Uplink/ Reverse</b></p> <p>The transmission direction selected is access terminal to base station. The signal corresponds to that of an access terminal.</p> <p>Remote-control command: SOUR:BB:EVDO:LINK UP</p>
<b>PN Offset - 1xEV-DO</b>	<p>Sets the PN Offset of the 1xEV-DO signal.</p> <p>Remote-control command: SOUR:BB:EVDO:PNOF 10</p>
<b>System Time - 1xEV-DO</b>	<p>Sets the System Time value of the 1xEV-DO signal and the base station. The System Time value is expressed in units of 1.67 ms intervals (80 ms/ 48).</p> <hr/> <p><b>Note:</b> <i>In uplink, the value selected for system time must be multiple of 16.</i></p> <hr/> <p>Remote-control command: SOUR:BB:EVDO:LINK DOWN SOUR:BB:EVDO:STIM 10</p> <p>SOUR:BB:EVDO:LINK UP SOUR:BB:EVDO:STIM 32</p>
<b>Predefined Settings - 1xEV-DO</b>	<p>Enables selection of UL predefined settings for Terminal 1 for faster configuration.</p> <p>The predefined settings are made according to 3GPP2 C.S0032-A to allow easy receiver testing.</p> <p>Remote-control command: SOUR:BB:EVDO:PRED ULS2PS256HC</p>
<b>Access Network Settings - 1xEV-DO</b>	<p>Opens the <b>Access Network Settings</b> window.</p> <hr/> <p><b>Note:</b> <i>This parameter is present for transmission direction downlink only.</i></p> <hr/> <p>The menu is described in section "<a href="#">Access Network Settings - 1xEV-DO</a>", page 13.</p> <p>Remote-control command: n.a.</p>



**Configure Traffic Channels - 1xEV-DO** Each of the four buttons **User 1 to 4** activates/deactivates the selected user and opens the corresponding **Configure Traffic User 1 to 4** window.

**Note:**

*This parameter is present for transmission direction downlink only.*

The menu is described in section "[Configure Traffic User 1..4 - 1xEV-DO](#)", page 16.

Remote-control command:

SOUR:BB:EVDO:USER2:STAT ON

**Configure Access Terminals - 1xEV-DO**

Each of the four buttons **Terminal 1 to 4** activates/deactivates the selected terminal and opens the corresponding **Configure Access Terminal 1 .. 4** window.

**Note:**

*This parameter is present for transmission direction uplink only.*

The menu is described in section "[Configure Access Terminal 1..4 - 1xEV-DO](#)", page 26.

Remote-control command:

SOUR:BB:EVDO:TERM2:STAT ON

**Filtering/Clipping/ARB Settings - 1xEV-DO**

Calls the menu for setting baseband filtering, clipping and the sequence length of the arbitrary waveform component. The current setting is displayed next to the button.

The menu is described in Section "[Filter/Clipping/ARB Settings - 1xEV-DO](#)", page 43.

Remote-control command: n.a.

**Trigger/Marker - 1xEV-DO**

**(Trigger for R&S SMx and R&S AMU instruments only)**

Calls the menu for selecting the trigger source, for configuring the marker signals and for setting the time delay of an external trigger signal (see Section "[Trigger/Marker/Clock - 1xEV-DO](#)", page 48).

The currently selected trigger source is displayed to the right of the button.

Remote-control command: n.a.

**Execute Trigger**

**(For R&S SMx and R&S AMU instruments only)**

Executes trigger manually.

A manual trigger can be executed only when an internal trigger source and a trigger mode other than **Auto** have been selected.

Remote-control commands:

SOUR:BB:EVDO:TRIG:SOUR INT

SOUR:BB:EVDO:SEQ RETR

SOUR:BB:EVDO:TRIG:EXEC

**Clock - 1xEV-DO**

**(Trigger for R&S SMx and R&S AMU instruments only)**

Calls the menu for selecting the clock source and for setting a delay (see Section "[Trigger/Marker/Clock - 1xEV-DO](#)", page 48).

Remote-control command: n.a.

## Access Network Settings - 1xEV-DO A

The **Access Network Settings** menu allows configuration of physical layer subtype, the pilot and control channels and reverse activity bit.

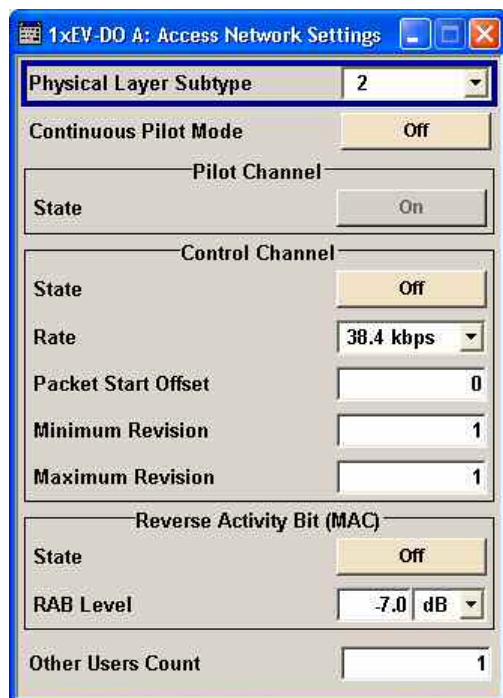
---

**Note:**

*This menu is available for transmission direction downlink only.*

---

The **Access Network Settings** menu consists of three main sections, **Pilot Channel**, **Control Channel** and **Reverse Activity Bit (MAC)**.



**Physical Layer Subtype  
(Access Network Settings)  
- 1xEV-DO**

Defines the physical layer subtype for the forward link direction. Physical layer subtype 0 is the original (release "0"). Physical layer subtype 1 and 2 are the revision "A" physical layers.

Remote-control command:

SOUR:BB:EVDO:ANET:SUBT S2

**Continuous Pilot Mode  
- 1xEV-DO**

Enables or disables a special mode within the 1xEV-DO generator. When the state is off, normal operation is selected. When the state is on, a special mode is selected.

In this special mode, the 1xEV-DO generator will generate a pilot signal with a set of MAC channels only. The data part of the slots is inactive.

---

**Note:**

*During the special mode, all other parameters do not affect the signal output.*

---

Remote-control command:

SOUR:BB:EVDO:ANET:CPM ON

<b>State (Pilot Channel)</b> - 1xEV-DO	<p>Displays the state of the pilot channel. Pilot channel is transmitted by sector on each active forward channel. It is present always and transmitted at the full sector power.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:PCH:STAT?</p>
<b>State (Control Channel)</b> - 1xEV-DO	<p>Enables or disables the control channel messages. The only control channel message that is ever sent is the Sync Message. When this is enabled, the control channel messages will have the highest priority for placement within the slots. The Sync Message will be updated constantly, even when the control channel is not enabled.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:CCH:STATE ON</p>
<b>Rate (Control Channel)</b> - 1xEV-DO	<p>Sets the rate that the control channel messages are transmitted at.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:CCH:RATE DR76K8</p>
<b>Packet Start Offset</b> - 1xEV-DO	<p>Sets the offset (in slots) from the start of control channel cycle to the start of the synchronous message capsule that contains the Sync Message.</p> <p>See "<a href="#">Traffic Scheduling Process</a>" for an explanation on how the control and traffic channels are transmitted over time.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:CCH:PSOF 2</p>
<b>Minimum Revision</b> - 1xEV-DO	<p>Sets the value of the minimum revision field within the control channel message.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:CCH:REV:MIN 0</p>
<b>Maximum Revision</b> - 1xEV-DO	<p>Sets the value of the maximum revision field within the control channel message.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:CCH:REV:MAX 10</p>
<b>State (Reverse Activity Bit)</b> - 1xEV-DO	<p>Activates or deactivates the reverse activity bit (RAB).</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:RAB:STAT ON</p>
<b>RAB Level - 1xEV-DO</b>	<p>Sets the power within the MAC block for the Reverse Activity Channel.</p> <p>Remote-control command: SOUR:BB:EVDO:ANET:RAB:LEV -7.0</p>

**RAB Length - 1xEV-DO**

Sets the duration (in slots) of a Reverse Activity bit.

---

**Note:**

*This parameter is available for physical layer subtype 0&1 only.*

---

Remote-control command:

```
SOUR:BB:EVDO:ANET:RAB:LENG RL16
```

**RAB Offset - 1xEV-DO**

Sets the starting time offset of the Reverse Activity (RA) bit in slots. The command is specified in Reverse Activity Length/8 units. The RA bit starts when the following equation is satisfied:  
System Time mod RABlength = RABOffset,  
where System Time is expressed in slots.

---

**Note:**

*This parameter is available for physical layer subtype 0&1 only.*

---

Remote-control command:

```
SOUR:BB:EVDO:ANET:RAB:OFFS 1
```

**Other User Count  
- 1xEV-DO**

Sets the number of additional users (beyond the four defined users) that appear in the MAC Channel. These additional users will never have a packet addressed to them, but are used to fill in the MAC channel code domain. These Other Users are used to evenly distribute the excess power (beyond what is required by the User 1..4 and RAB channels).

Remote-control command:

```
SOUR:BB:EVDO:ANET:OUC 5
```

## Configure Traffic User 1 to 4 - 1xEV-DO

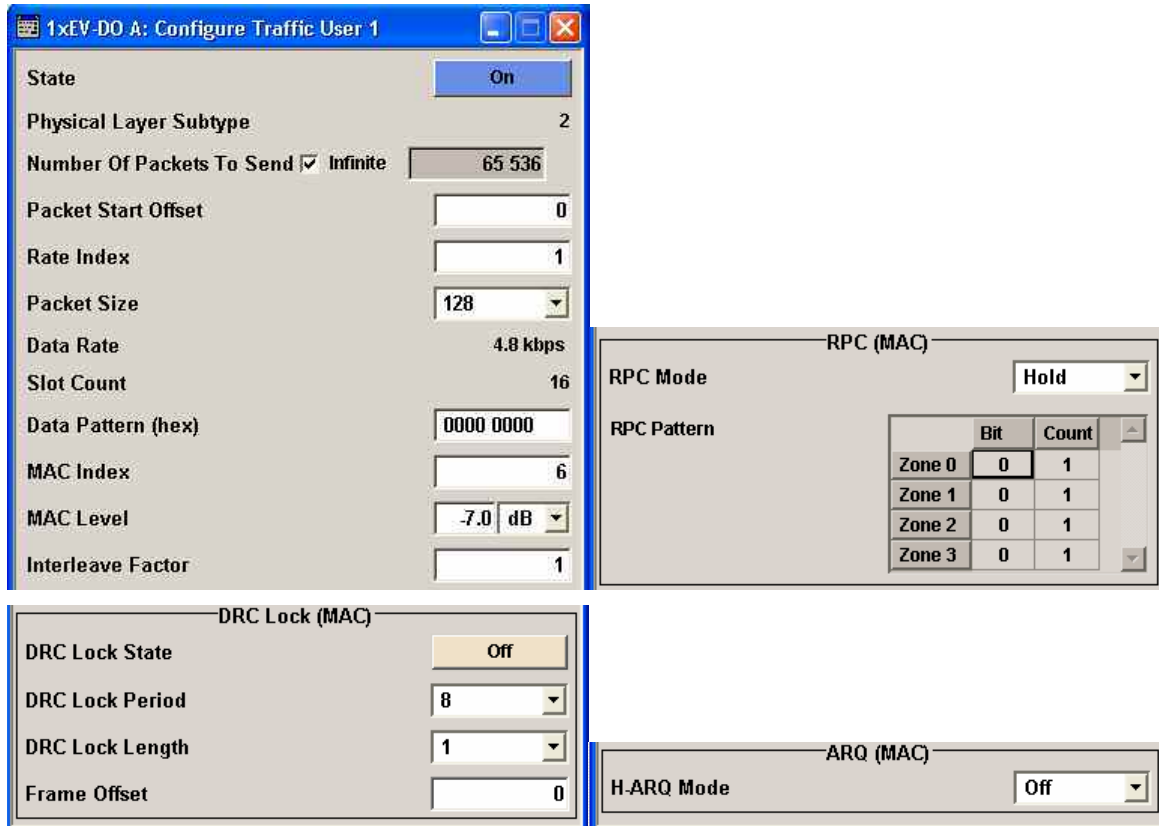
The **Configure Traffic User 1 to 4** menu allows configuration of the traffic channel and configuration of the forward MAC channel settings, such as Reverse Power Control (RPC) and DRCLock.

**Note:**

*This menu is available for transmission direction downlink only.*

There is one **Configure Traffic User** panel for each of the 4 users. The user number is indicated in the panel headline.

The **Configure Traffic User 1..4** menu consists of three main sections, **General Traffic Settings**, **RPC (MAC)** and **DRC Lock (MAC)**.



### State (User) - 1xEV-DO

Enables or disables the selected user. If the user is enabled, the proper MAC Index will be placed within the MAC channel and packets may be sent to the user. If disabled, the MAC Index will not be present within the MAC channel and packets may not be sent to the user.

**Note:**

*Disabling the state of a user during a transfer aborts all transfers to the user.*

Remote-control command:

SOUR:BB:EVDO:USER2:STAT ON

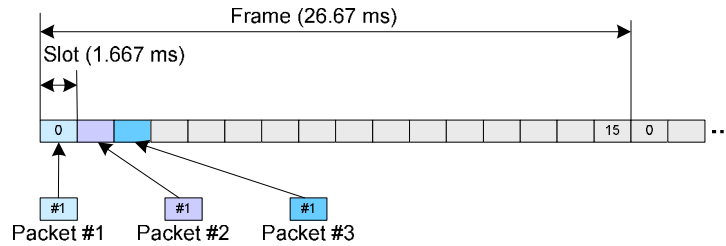
<b>Physical Layer Subtype (User)- 1xEV-DO</b>	<p>Displays the physical layer subtype selected in the menu <b>Access Network Settings</b>.</p> <p>Remote-control command: SOUR:BB:EVDO:USER2:SUBT?</p>
<b>Number of Packets to Send - 1xEV-DO</b>	<p>Sets the number of packets to send to the selected user. The number of packets to be sent depends on whether the parameter <b>Infinite</b> is enabled or disabled. If <b>Infinite</b> is enabled, there is no limit to the number of packets sent to the user. If <b>Infinite</b> is disabled and a value is specified while packets are being sent, the new count value will be used at the end of transmission of the current packet. If a value of zero is specified, the transmission to the user will be stopped at the end of the current packet.</p> <p>Remote-control commands: SOUR:BB:EVDO:USER2:PACK:INF OFF SOUR:BB:EVDO:USER2:PACK:COUNT 10</p>
<b>Infinite - 1xEV-DO</b>	<p>Enables or disables sending an unlimited number of packets to the selected user. If <b>Infinite</b> is enabled, there is no limit to the number of packets sent to the user. If <b>Infinite</b> is disabled, the number of packets to be sent to the selected user can be specified.</p> <p>Remote-control command: SOUR:BB:EVDO:USER2:PACK:INF ON</p>

**Packet Start Offset**  
- 1xEV-DO

Sets the minimum number of slots between the end of one packet and the beginning of the next.

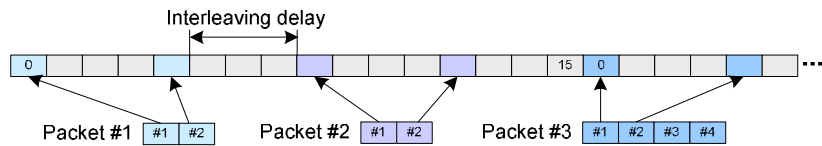
For single slot packets, a value of zero will cause the next packet to be sent in the immediate next slot (subject to scheduling).

Example:  
Single Slot Packets  
SOFF=0



For multiple slot packets, a value of zero will cause the next packet transmission to start three slots after the end of the previous packet. The three slot delay is identical to the interleaving delay between slots for multiple slot packets. The offset value is attached to the end of the preceding packet.

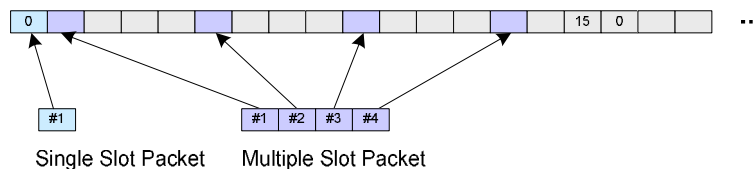
Example:  
Multiple Slot Packets  
SOFF=0



**Note:**

*An offset value of zero with a rate change from a single slot packet to multiple slot packets will cause the first slot of the multiple slot packets to be transmitted in the slot immediately following the single slot packet.*

Example:  
Rate change  
SOFF=0



See "[Traffic Scheduling Process](#)" for an explanation on how the control and traffic channels are transmitted over time.

Remote-control command:

SOUR:BB:EVDO:USER2:PACK:SOFF 0



**Rate Index - 1xEV-DO**

Sets an index into the table of rates and slot counts.  
 For physical layer 0&1, the parameter **Rate Index** alone automatically set the packet size, data rate and the slot count for the packets sent to the selected user. Parameters **Packet Size, Data Rate** and **Slot Count** are read-only. (see Table "[Rate Index for Physical Layer Subtype 0&1](#)")  
 For physical layer subtype 2 however, a combination of the parameters **Rate Index** and the parameter **Packet Size** sets the data rate and the slot count for the packets sent to the selected user. (see Table "[Rate Index for Physical Layer Subtype 2](#)")

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

Remote-control command:

SOUR:BB:EVDO:USER2:RATE:IND 4

Table 2 Rate Index for Physical Layer Subtype 0 + 1

Rate Index	Packet Size Index	Packet Size, bits	Data Rate, kbps	Slot count
1	0	1024	38.4	16
2	0	1024	76.8	8
3	0	1024	153.6	4
4	0	1024	307.2	2
5	0	2048	307.2	4
6	0	1024	614.4	1
7	0	2048	614.4	2
8	0	3072	921.6	2
9	0	2048	1228.8	1
10	0	4096	1228.8	2
11	0	3072	1843.2	1
12	0	4096	2457.6	1

Rate Index	Packet Size Index	Packet Size, bits	Data Rate, kbps	Slot count
1	3	128	4.8	16
1	2	256	9.6	16
1	1	512	19.2	16
1	0	1024	38.4	16
2	3	128	9.6	8
2	2	256	19.2	8
2	1	512	38.4	8
2	0	1024	76.8	8
3	3	128	19.2	4
3	2	256	38.4	4
3	1	512	76.8	4
3	0	1024	153.6	4

Table 3 Rate Index for Physical Layer Subtype 2

Rate Index	Packet Size Index	Packet Size, bits	Data Rate, kbps	Slot count
4	3	128	38.4	2
4	1	512	153.6	2
5	2	512	76.8	4
5	1	1024	153.6	4
5	0	2048	307.2	4
6	3	128	76.8	1
6	2	256	153.6	1
6	1	512	307.2	1
6	0	1024	614.4	1
7	2	512	153.6	2
7	1	1024	307.2	2
7	0	2048	614.4	2
8	1	1024	307.2	2
8	0	3072	921.6	2
9	2	512	307.2	1
9	1	1024	614.4	1
9	0	2048	1228.8	1
10	0	4096	1228.8	2
11	1	1024	614.4	1
11	0	3072	1843.2	1
12	0	4096	2457.6	1
13	0	5120	1536	2
14	0	5120	3072	1

**Packet Size - 1xEV-DO**

Sets the packet size for the packets sent to the selected user. For physical layer 0&1, the parameter **Packet Size** is read-only. The value is automatically set depending on the selection for the parameter **Rate Index**. (see Table "[Rate Index for Physical Layer Subtype 0&1](#)") For physical layer subtype 2, a combination of the parameter **Packet Size** and the parameter **Rate Index** sets the data rate and the slot count for the packets sent to the selected user. (see Table "[Rate Index for Physical Layer Subtype 2](#)")

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Remote-control commands:**

```
SOUR:BB:EVDO:ANET:SUBT S2
SOUR:BB:EVDO:USER2:RATE:IND 4
SOUR:BB:EVDO:USER2:PSIZ PS256
SOUR:BB:EVDO:USER2:RATE?
```

**Data Rate - 1xEV-DO**

Displays the data rate of the packets sent to the selected user. This parameter is read-only. The value is set automatically, depending on the selected **Rate Index** and **Packet Size** (see Table "[Rate Index for Physical Layer Subtype 0&1](#)" and Table "[Rate Index for Physical Layer Subtype 2](#)").

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Remote-control commands:**

```
SOUR:BB:EVDO:ANET:SUBT S2
SOUR:BB:EVDO:USER2:RATE:IND 4
SOUR:BB:EVDO:USER2:PSIZ PS256
SOUR:BB:EVDO:USER2:RATE?
Response: 76.8 kbps
```

**Slot Count - 1xEV-DO**

Displays the slot count of the packets sent to the selected user. This parameter is read-only. The value is set automatically, depending on the selected **Rate Index** and **Packet Size**. (see Table "[Rate Index for Physical Layer Subtype 0&1](#)" and Table "[Rate Index for Physical Layer Subtype 2](#)")

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Remote-control commands:**

```
SOUR:BB:EVDO:ANET:SUBT S2
SOUR:BB:EVDO:USER2:RATE:IND 4
SOUR:BB:EVDO:USER2:PSIZ PS256
SOUR:BB:EVDO:USER2:SCO?
Response: 2
```

**Data Pattern - 1xEV-DO**

Sets the data pattern for the data portion of the packets sent to the user. The most significant bit (MSB) of this value is the MSB of the packet and the word is repeated to fill all space within the packet. This parameter is in a hexadecimal format.

**Remote-control command:**

```
SOUR:BB:EVDO:USER2:DATA:PATT #H55aa55aa
```

**MAC Index - 1xEV-DO**

Sets the MAC Index used for the selected user. MAC Index should be different for the different users. However, in case that two users are using the same value for MAC Index, the lower priority user will be disabled, or be unable to enable. The values for the MAC Indexes for the 'OtherUsers' (see parameter "[Other User Count - 1xEV-DO](#)") will be assigned from a pool of valid MAC Indexes, that exclude the MAC Indexes specified for each of the four configurable users.

**Remote-control command:**

```
SOUR:BB:EVDO:USER2:MAC:IND 16
```

<b>MAC Level - 1xEV-DO</b>	<p>Sets the power within the MAC channel that is dedicated to the selected user.</p> <p>Remote-control command:  <code>SOUR:BB:EVDO:USER2:MAC:LEV -7.0</code></p>
<b>Interleave Factor - 1xEV-DO</b>	<p>Controls the number of interleave slots used for the selected user on the forward link.</p> <p>Four interleave slots are defined in the 1xEV-DO system. By default, only 1 Interleave slot (Interleave Factor = 1) for an access terminal is configured and transmission to that access terminal every 4th slot is selected.</p> <p>For an interleave factor &gt; 1, packets on multiple interleave slots will be sent, increasing the data throughput to the access terminal.</p> <p>Remote-control command:  <code>SOUR:BB:EVDO:USER2:IFAC 2</code></p>
<b>RPC Mode - 1xEV-DO</b>	<p>Sets the operation mode for the Reverse Power Control (RPC) Channel within the MAC channel for the selected user.</p> <p><b>Hold</b>                      An alternating series of Up and Down power control bits are transmitted. The intent is to hold the access terminal at a constant power level. This mode always starts with an Up bit, and ends with the following Down bit.  This mode is two bits long.</p> <p>Remote-control command:  <code>SOUR:BB:EVDO:USER2:RPC:MODE HOLD</code></p> <p><b>All up</b>                      A continuous stream of Up (0) power control bits are transmitted. The intent is to force the access terminal to the highest transmit power level.  This mode is a single bit long.</p> <p>Remote-control command:  <code>SOUR:BB:EVDO:USER2:RPC:MODE UP</code></p> <p><b>All down</b>                      A continuous stream of Down (1) power control bits are transmitted. The intent is to force the access terminal to the lowest transmit power level.  This mode is a single bit long.</p> <p>Remote-control command:  <code>SOUR:BB:EVDO:USER2:RPC:MODE DOWN</code></p> <p><b>Range</b>                      A sequence of Up power control bits are sent followed by an equal number of Down power control bits. The intent is to force the access terminal to ramp its power from one extreme to another.</p> <p>The number of power control bits in each direction is specified by the <b>RPC Range Count</b> parameter. (see "<a href="#">RPC Range Count - 1xEV-DO</a>"). Each time that the Range mode is specified, the sequence will be restarted.</p> <p>The Range mode starts with the first Up bit and ends with the last Down bit.  The length of the mode is two times the RPC</p>

	Range Count.
	Remote-control command: SOUR:BB:EVDO:USER2:RPC:MODE RANG
<b>External</b>	The state of the RPC bit will be taken from the External RPC input. Multiple devices may use this mode, but only one input is provided. The length of this mode is one bit.
	<b>Note:</b> <i>External mode is enabled in the realtime system only.</i>
	Remote-control command: SOUR:BB:EVDO:USER2:RPC:MODE EXT
<b>Pattern</b>	A user-defined sequence of RPC bits is sent. The mode starts with the bit defined in the first (0) zone, and ends with the last bit of the last (3) zone. The length of the pattern is the sum of the Count values for each RPC Zone.
	Remote-control command: SOUR:BB:EVDO:USER2:RPC:MODE PATT
<b>RPC Range Count - 1xEV-DO</b>	Sets the number of Reverse Power Control (RPC) bits sent in each direction when the <b>RPC Mode</b> is set to Range. The specified value is used immediately.
	<b>Note:</b> <i>This parameter is displayed in RPC Mode "Range" only.</i>
	Remote-control command: SOUR:BB:EVDO:USER2:RPC:MODE RANG SOUR:BB:EVDO:USER2:RPC:RANG 200
<b>RPC Pattern - 1xEV-DO</b>	Defines the Reverse Power Control (RPC) pattern in form of table with four zones (zone 0 .. 3). For each zone, a bit and a count can be defined.
<b>Bit</b>	Defines the RPC bits sent within the specific zone of the RPC Pattern.  Remote-control command: SOUR:BB:EVDO:USER2:RPC:ZONE1:BIT 1
<b>Count</b>	Defines the number of RPC bits sent within the specific zone of the RPC Pattern.  Remote-control command: SOUR:BB:EVDO:USER2:RPC:ZONE1:COUN 10

**DRC Lock State**  
- 1xEV-DO

Sets the state of the DRC (Data Rate Control) Lock bit for the selected user.

---

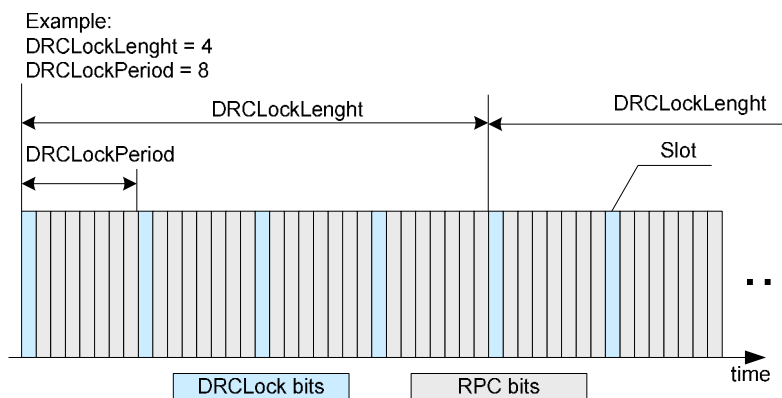
**Note:**  
*Changes in the DRC Lock state are only considered at the interval defined by the parameter DRC Lock Length.*

---

Remote-control command:  
SOUR:BB:EVDO:USER2:DRCL:STAT ON

**DRC Lock Period**  
- 1xEV-DO

Sets the period (measured in slots) of time between successive transmissions of the DRC (Data Rate Control) Lock bit for the selected user.




---

**Note:**  
*A value of zero will disable the DRC Lock subchannel and the MAC RPC channel of the selected user will not be punctured with the DRC Lock subchannel.*

---

Remote-control command:  
SOUR:BB:EVDO:USER2:DRCL:PER DP8

**DRC Lock Length**  
- 1xEV-DO

Sets the number of DRC (Data Rate Control) Lock Periods that the state of the DRC Lock for the selected user will be held constant (see figure above).

---

**Note:**  
*Changes in the DRC Lock state are only considered at the interval defined by the parameter DRC Lock Length.*

---

A value of one allows updating of the DRC Lock bit at anytime.

Remote-control command:  
SOUR:BB:EVDO:USER2:DRCL:LENG DL4

**Frame Offset - 1xEV-DO**

Sets the reverse link frame offset for the reverse link. The frame offset is used to properly position the DRC Lock bit within the MAC channel.

Remote-control command:  
SOUR:BB:EVDO:USER2:DRCL:OFFS 5

**H-ARQ Mode - 1xEV-DO**

Enables or disables the H-ARQ Channel.  
The H-ARQ channel is used by the access network to transmit positive acknowledgement (ACK) or a negative acknowledgement (NAK) in response to a physical layer packet.

**Note:**

*This parameter is enabled for Physical Layer Subtype 2 only.*

- Off** Disables transmission of the H-ARQ channel.  
Remote-control command:  
SOUR:BB:EVDO:ANET:SUBT S2  
SOUR:BB:EVDO:USER2:HARQ:MODE OFF
- ACK** The channel will be transmitted with all bits set to ACK.  
Remote-control command:  
SOUR:BB:EVDO:ANET:SUBT S2  
SOUR:BB:EVDO:USER2:HARQ:MODE ACK
- NAK** The channel will be transmitted with all bits set to NAK.  
Remote-control command:  
SOUR:BB:EVDO:ANET:SUBT S2  
SOUR:BB:EVDO:USER2:HARQ:MODE NAK

## Configure Access Terminal 1 to 4 - 1xEV-DO

The **Configure Access Terminal 1 to 4** menu allows configuration of the mode of the access terminal, configuration of the data channel and configuration of the different channels, such as Pilot Channel, Auxiliary Pilot Channel, Reverse Rate Indicator (RRI) Channel, Data Source Control (DSC) Channel, Data Rate Control (DRC) Channel and ACK channel.

**Note:**

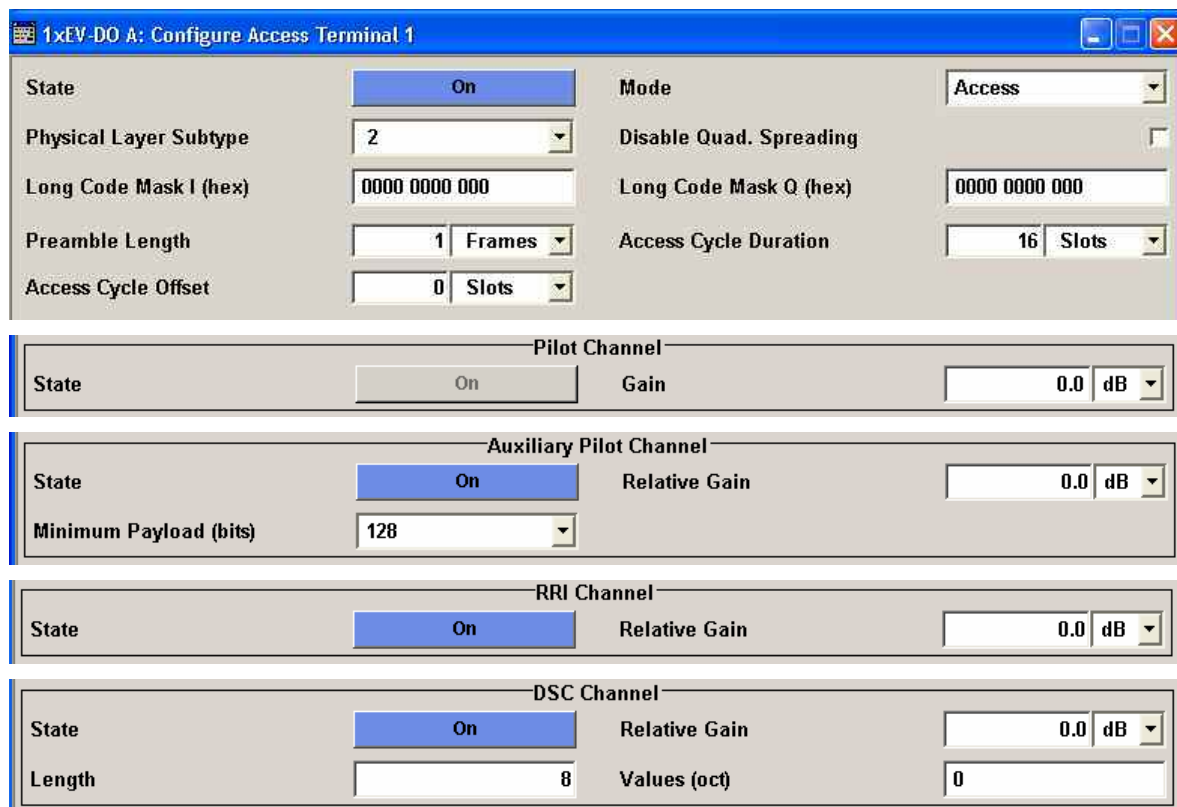
*This menu is available for transmission direction uplink only.*

There is one **Configure Access Terminal** panel for each of the 4 users. The user number is indicated in the panel headline.

The **Configure Access Terminal 1 to 4** menu consists of several main sections, General Access Terminal Settings, different **Channels Settings** and **Data Channel**. The available channels depend on the selected Physical Layer Subtype and the selected Access Terminal Mode, see table below.

Table 4 Overview on available channels, depending on physical layer subtype and access terminal mode.

Physical Layer Subtype	Access Terminal Mode	Pilot Channel	Auxiliary Pilot Channel	RRI Channel	DSC Channel	DRC Channel	ACK Channel	Data Channel
0&1	Traffic	X	-	X	-	X	X	Packet 1
	Access	X	-	-	-	-	-	Packet 1
2	Traffic	X	X	X	X	X	X	Packet 1 to 3
	Access	X	-	-	-	-	-	Packet 1





**DRC Channel**

State:  Relative Gain:  dB

Length:  Values (hex):

Cover:  Gating Active:

**ACK Channel**

State:  Relative Gain:  dB

Mode:  Gating (bin):

Values (bin):

**Data Channel**

	State	Rel Gain /dB	Infinite Packets	Packets To Send	Sub-packets	Payload Size /bits	Mod	Data Rate	Chan Cod	Data Source	DList/ Pattern	FCS
Packet 1	On	0.0	On	65 536	1	128	B4	0.00	On	PN 9		On
Packet 2	On	0.0	On	65 536	1	128	B4	0.00	On	PN 9		On
Packet 3	On	0.0	On	65 536	1	128	B4	0.00	On	PN 9		On

**State (Access Terminal)**  
- 1xEV-DO

Enables or disables the selected access terminal.

Remote-control command:  
SOUR:BB:EVDO:TERM2:STAT ON

**Mode (Access Terminal)**  
- 1xEV-DO

Sets the mode (Traffic or Access) of the selected access terminal.

Remote-control command:  
SOUR:BB:EVDO:TERM2:MODE ACC

**Physical Layer Subtype (Access Terminal)**  
- 1xEV-DO

Selects the physical layer subtype for the selected access terminal.

Remote-control command:  
SOUR:BB:EVDO:TERM2:SUBT S2

**Disable Quad. Spreading**  
- 1xEV-DO

Disables the quadrature spreading (complex multiply) with PN sequences and long code.

Remote-control command:  
SOUR:BB:EVDO:TERM2:DQSP ON

**Long Code Mask I (hex)**  
- 1xEV-DO

Sets the long code mask of the I channel.

Remote-control command:  
SOUR:BB:EVDO:TERM2:IMAS #H2FFFFFFFFFFFF,42

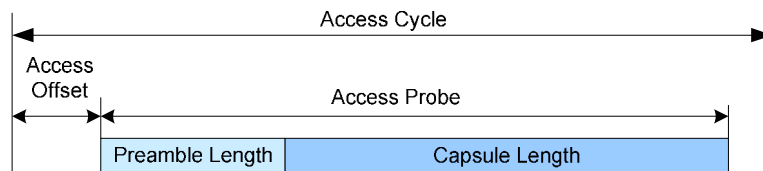
**Long Code Mask Q (hex)**  
- 1xEV-DO

Sets the long code mask of the Q channel.

Remote-control command:  
SOUR:BB:EVDO:TERM2:QMAS #H3FFFFFFFFFFFF,42

**Preamble Length**  
- 1xEV-DO

Specifies the length of the preamble in frames (16 slots each) of the access probe (see figure below).



**Note:**  
*This parameter is only enabled for an access terminal working in access mode.*

Remote-control command:  
SOUR:BB:EVDO:TERM2:PLEN 7

**Access Cycle Duration**  
- 1xEV-DO

Sets the access cycle duration in slots. Access probes are repeated with a period of access cycle duration slots (see figure above).

**Note:**  
*This parameter is only enabled for an access terminal working in access mode.*

Remote-control commands:  
SOUR:BB:EVDO:TERM2:MODE ACC  
SOUR:BB:EVDO:TERM2:ACYC:DUR 20

**Access Cycle Offset**  
- 1xEV-DO

The access channel transmission starts with this number of slots relative to the beginning of each access cycle duration (see figure above).

**Note:**  
*This parameter is only enabled for an access terminal working in access mode.*

Remote-control commands:  
SOUR:BB:EVDO:TERM2:MODE ACC  
SOUR:BB:EVDO:TERM2:ACYC:OFFS 10

**State**  
(Pilot Channel) - 1xEV-DO

Displays the state of the pilot channel.

**Note:**  
*The pilot channel is always switched on.*

Remote-control command:  
SOUR:BB:EVDO:TERM2:PCH:STAT?

**Gain**  
(Pilot Channel)- 1xEV-DO

Sets the gain of the pilot channel. Gains of other channels are relative to the pilot channel power. This setting is used to distinguish the power between access terminals, when more than one access terminal is active.

Remote-control command:  
SOUR:BB:EVDO:TERM2:PCH:GAIN 10

**State (Auxiliary Pilot Channel) - 1xEV-DO**

Enables or disables the state of the auxiliary pilot channel.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:APCH:STAT OFF

**Relative Gain (Auxiliary Pilot Channel) - 1xEV-DO**

Sets the gain of the auxiliary pilot channel relative to the data channel power.

**Note:**

*All other channel gains are specified relative to the pilot channel power, but the auxiliary pilot gain is specified relative to the data channel power.*

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:APCH:GAIN -10

**Minimum Payload (Auxiliary Pilot Channel) - 1xEV-DO**

Sets the minimum payload size in bits of the data channel that activates the transmission of the auxiliary pilot channel.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:APCH:PAYL:MIN PS256

**State (RRI Channel) - 1xEV-DO**

Enables or disables the state of the reverse rate indicator (RRI) channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:RRIC:STAT OFF

**Relative Gain (RRI Channel) - 1xEV-DO**

Sets the gain of the reverse rate indicator (RRI) channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:RRIC:GAIN 10

<b>State (DSC Channel) - 1xEV-DO</b>	<p>Enables or disables the state of the data source control (DSC) channel.</p> <hr/> <p><b>Note:</b>  <i>This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.</i></p> <hr/> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:DSCC:STAT OFF</p>
<b>Relative Gain (DSC Channel) - 1xEV-DO</b>	<p>Sets the gain of the data source control (DSC) channel relative to the pilot channel power.</p> <hr/> <p><b>Note:</b>  <i>This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.</i></p> <hr/> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:DSCC:GAIN 10</p>
<b>Length (DSC Channel) - 1xEV-DO</b>	<p>Specifies the transmission duration of the data source control (DSC) channel in slots.</p> <hr/> <p><b>Note:</b>  <i>This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.</i></p> <hr/> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:DSCC:LENG</p>
<b>Values (DSC Channel) - 1xEV-DO</b>	<p>Specifies the pattern transmitted on the data source control (DSC) Channel.  The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. Each specified value is transmitted for DSC length slots.</p> <hr/> <p><b>Note:</b>  <i>This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.</i></p> <hr/> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:DSCC:VAL #H147,12</p>
<b>State (DRC Channel) - 1xEV-DO</b>	<p>Enables or disables the state of the data rate control (DRC) channel.</p> <hr/> <p><b>Note:</b>  <i>This parameter is only enabled for an access terminal working in traffic mode.</i></p> <hr/> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:DRCC:STAT OFF</p>

**Relative Gain  
(DRC Channel) - 1xEV-DO**

Sets the gain of the data rate control (DRC) channel relative to the pilot channel power.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:DRCC:GAIN 10
```

**Length  
(DRC Channel) - 1xEV-DO**

Specifies the transmission duration of the data rate control (DRC) channel in slots.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:DRCC:LENG DL2
```

**Values  
(DRC Channel) - 1xEV-DO**

Specifies the pattern transmitted on the data rate control (DRC) channel. The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. Each specified value is used for DRC length slots.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:DRCC:VAL #H7,4
```

**Cover  
(DRC Channel) - 1xEV-DO**

Selects the data rate control (DRC) channel Walsh cover.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:DRCC:COV 1
```

**Gating Active  
(DRC Channel) - 1xEV-DO**

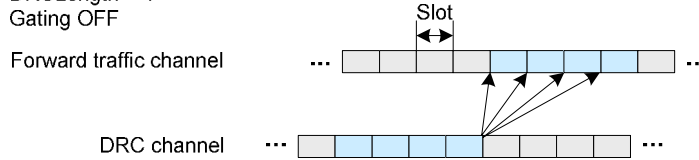
Activates or deactivates the data rate control (DRC) Channel gating.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

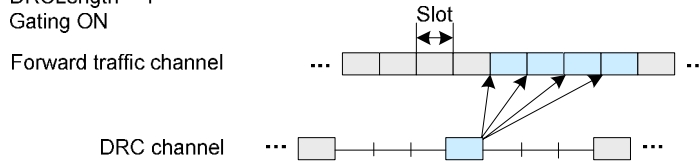
With deactivated gating, each DRC value is repeated for DRC length slots.

Example:  
DRCLength = 4  
Gating OFF



If gating is active, each value of the DRC channel is transmitted for one slot followed by DRCLength-1 empty slots.

Example:  
DRCLength = 4  
Gating ON



Remote-control command:

SOUR:BB:EVDO:TERM2:DRCC:GAT:STAT OFF

**State  
(ACK Channel) - 1xEV-DO**

Enables or disables the ACK channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:ACKC:STAT OFF

**Relative Gain  
(ACK Channel) - 1xEV-DO**

Sets the gain of the ACK channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:ACKC:GAIN -10

**Mode  
(ACK Channel) - 1xEV-DO**

Specifies the modulation mode of the ACK channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**BPSK** Sets the modulation to BPSK (Binary Phase Shift Keying).  
With BPSK modulation, a 0 (ACK) is mapped to +1 and a 1 (NAK) to -1 respectively.

Remote-control command:

```
SOUR:BB:EVDO:TERM2:MODE TRAF
```

```
SOUR:BB:EVDO:TERM2:ACKC:MODE BPSK
```

**OOK** Sets the modulation to OOK (On-Off Keying).  
With OOK modulation, a 0 (ACK) is mapped to ON and a 1 (NAK) to OFF.

---

**Note:**

*OOK modulation is only enabled for physical layer subtype 2.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:MODE TRAF
```

```
SOUR:BB:EVDO:TERM2:SUBT S2
```

```
SOUR:BB:EVDO:TERM2:ACKC:MODE OOK
```

### Gating (ACK Channel) - 1xEV-DO

Sets the active and inactive slots of the ACK channel.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern.

A 0 gates the ACK channel off for the corresponding slot, a 1 activates the channel.

Remote-control command:

```
SOUR:BB:EVDO:TERM2:ACKC:GAT #B11001100,8
```

### Values (ACK Channel) - 1xEV-DO

Specifies the data pattern transmitted on the ACK Channel.

The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. A 0 specifies an ACK, a 1 specifies a NAK. This pattern is only read for slots that are gated on.

---

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

---

Remote-control command:

```
SOUR:BB:EVDO:TERM2:ACKC:VAL #B011,3
```

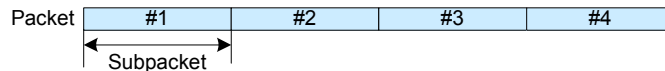
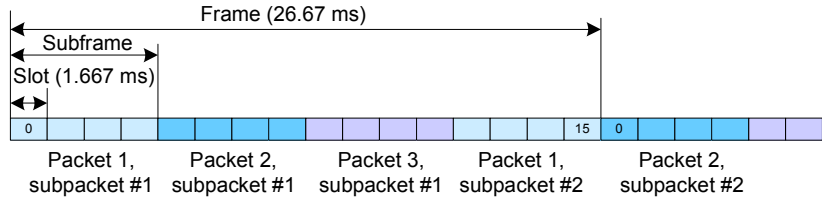
**State (Packet) - 1xEV-DO**

Enables or disables the state of the packet(s).

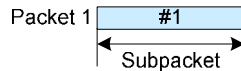
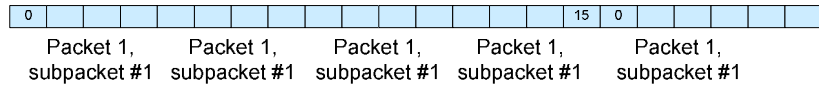
**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

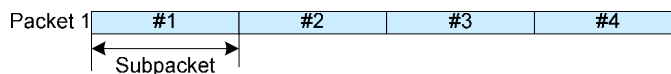
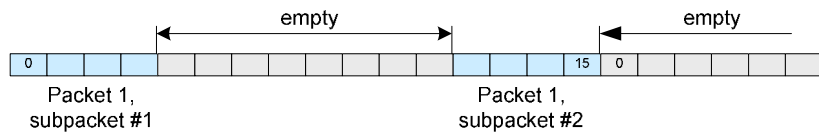
There are three configurable packets (Packet 1... 3) for physical layer subtype 2. When more than one packet is active, packet 1 is sent on the first subframe (first 4 slots), packets 2 and 3 are sent respectively on the second and the third subframe (see figure below).



When only one packet is active and **Number of Sub-packets** is set to 1, no interleaving will be performed between the packets. In this case, the data channel is active continuously (see figure below).



When only one packet is active but the number of subpackets is larger than one, subframe interleaving has to be performed. In this case 2 subframes will be left empty inbetween every two subpackets (see figure below).



Only one configurable packet is available for physical layer subtype 0&1, the data channel is continuously active for the number of packets to send.

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK2:STAT OFF
```



**Relative Gain  
(Packet) - 1xEV-DO**

Sets the gain in dB of the selected packet relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK3:GAIN -10
```

**Infinite Packets  
(Packet) - 1xEV-DO**

Enables or disables sending an unlimited number of packets. If **Infinite Packets** is disabled, the number of packets to send can be specified with the parameter **Number of Packets to Send**.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK3:INF OFF
SOUR:BB:EVDO:TERM2:DCH:PACK3:COUN 2000
```

**Number of Packets to Send (Packet) - 1xEV-DO** Sets the number of packets to be sent.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The number of packets to send depends on whether the parameter **Infinite Packets** is enabled or disabled. If **Infinite Packets** is enabled, there is no limit to the number of packets sent.

If **Infinite Packets** is disabled, the number of packets can be specified. The data channel will be switched off after the specified **Number of Packets** have been sent.

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

## Remote-control commands:

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK3:INF OFF
SOUR:BB:EVDO:TERM2:DCH:PACK3:COUN 2000
```

**Number of Sub-packets (Packet) - 1xEV-DO**

Sets the number of sub-packets to be sent.

**Note:**

*This parameter is only enabled for physical layer subtype 2 and for an access terminal working in traffic mode.*

## Example:

If number of sub-packets is 4, then subpacket 0, 1, 2 and 3 of a packet will be sent in a subframe each (with 2 subframes interleaving between) before the next packet is started. This is to simulate a situation where 3 times NAK has been received from the base station with an ACK after the 4<sup>th</sup> subpacket.

## Remote-control commands:

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK3:SUBP:COUN 2
```

**Payload Size  
(Packet) - 1xEV-DO**

Sets the payload size in bits for the selected packet.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

Remote-control commands:

SOUR:BB:EVDO:TERM2:DCH:PACK3:PSIZ PS512

**Modulation  
(Packet)- 1xEV-DO**

Displays the modulation type per packet.  
The modulation type is set automatically according to the selected payload size. The value is read-only.

**Note:**

*This parameter is only enabled for physical layer subtype 2 and for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:DCH:PACK3:MOD?

- B4** The modulation type is set to BPSK modulation with 4-ary Walsh cover.
- Q4** The modulation type is set to QPSK modulation with 4-ary Walsh cover.
- Q2** The modulation type is set to QPSK modulation with 2-ary Walsh cover.
- Q4Q2** Sum of Q4 and Q2 modulated symbols.
- E4E2** Sum of E4 (8-PSK modulated with 4-ary Walsh cover) and E2 (8-PSK modulated with 2-ary Walsh cover) modulated symbols.

**Data Rate  
(Packet) - 1xEV-DO**

Displays the resulting data rate for the selected Packet.  
This is the effective data rate achieved for the specific packet. Sum up the data rates of all 3 packets to obtain the total effective data rate for the uplink data channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

Remote-control command:

SOUR:BB:EVDO:TERM2:MODE TRAF  
SOUR:BB:EVDO:TERM2:DCH:PACK2:DRAT?

**Channel Coding (Packet) - 1xEV-DO**

Activates or deactivates channel coding, including scrambling, turbo encoding and channel interleaving.

---

**Note:**  
*This parameter is only enabled for an access terminal working in traffic mode.*

---



---

**Note:**  
*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

---

Remote-control commands:  
 SOUR:BB:EVDO:TERM2:MODE TRAF  
 SOUR:BB:EVDO:TERM2:SUBT S2  
 SOUR:BB:EVDO:TERM2:DCH:PACK3:CCOD OFF

**Data Source (Packet) - 1xEV-DO**

Selects the data source.

---

**Note:**  
*This parameter is only enabled for an access terminal working in traffic mode.*

---

The number of bits read from the data source for each packet depends on the payload size, channel coding state and FCS state. The following table gives an overview on the number of bits read.

	FCS ON	FCS OFF
Channel Coding ON	PayloadSize - FCSSize - 6	PayloadSize - 6
Channel Coding OFF	$(\text{PayloadSize}/\text{CodeRate}) - \text{FCSSize}$	$(\text{PayloadSize}/\text{CodeRate})$

FCSSize and code rate depend on the physical layer subtype (see table below).

	Physical layer subtype 0&1	Physical layer subtype 2
FCSSize	16	24
Code rate	1/4 or 1/2	1/5 or 1/3

---

**Note:**  
*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

---

<b>ZERO ONE</b>	<p>0 data or 1 data is internally generated.</p> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:MODE TRAF  SOUR:BB:EVDO:TERM2:DCH:PACK3:DATA  ZERO ONE</p>
<b>PNxx</b>	<p>PRBS data in accordance with the IUT-T with period lengths between <math>2^9-1</math> and <math>2^{23}-1</math> are internally generated.</p> <p>Remote-control commands:  SOUR:BB:EVDO:TERM2:MODE TRAF  SOUR:BB:EVDO:TERM2:SUBT S2  SOUR:BB:EVDO:TERM2:DCH:PACK2:DATA  PN9 PN11 PN15 PN16 PN20 PN21 PN23</p>
<b>PATtern Pattern</b>	<p>A user-definable bit pattern with a maximum length of 64 bits is internally generated.</p> <p>The bit pattern is defined in the Pattern input box.</p> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:MODE TRAF  SOUR:BB:EVDO:TERM2:SUBT S2  SOUR:BB:EVDO:TERM2:DCH:PACK3:DATA  PATT  SOUR:BB:EVDO:TERM2:DCH:PACK3:DATA:PATT #H3F,8</p>
<b>DLISt Select Data List</b>	<p>Data lists will be used. Data lists can be generated internally in the data editor or externally.</p> <p>Data lists are selected in the <b>Select Data List</b> field.</p> <p>Remote-control command:  SOUR:BB:EVDO:TERM2:MODE TRAF  SOUR:BB:EVDO:TERM2:DCH:PACK:DATA DLIS  MMEM:CDIR 'D:\datalists  SOUR:BB:EVDO:TERM2:DCH:PACK:DATA:DSEL  'datalist.dm_iqd'</p>

**DList/Pattern  
(Packet) - 1xEV-DO**

Displays selected data list or pattern.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK2:DATA DLIS
MME:CDIR 'D:\datalists
SOUR:BB:EVDO:TERM2:DCH:PACK2:DATA:DSEL
'datalist.dm_iqd'

SOUR:BB:EVDO:TERM2:DCH:PACK:DATA PATT
SOUR:BB:EVDO:TERM2:DCH:PACK:DATA:PATT #H3F,8
```

**FCS (Packet) - 1xEV-DO**

Enables or disables appending a standard Frame Check Sequence (FCS) to the MAC layer packet.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE TRAF
SOUR:BB:EVDO:TERM2:SUBT S2
SOUR:BB:EVDO:TERM2:DCH:PACK3:FCS:STAT OFF
```

**State  
(Data Channel) - 1xEV-DO**

Enables or disables the state of the Data Channel.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Remote-control commands:**

```
SOUR:BB:EVDO:TERM2:MODE ACC
SOUR:BB:EVDO:TERM2:DCH:STAT OFF
```

**Relative Gain  
(Data Channel) - 1xEV-DO**

Sets the gain in dB of the data channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

Remote-control commands:

SOUR:BB:EVDO:TERM2:MODE ACC  
SOUR:BB:EVDO:TERM2:DCH:GAIN -10

**Capsule Length  
(Data Channel) - 1xEV-DO**

Sets the number of frames (16 slots each) to be transmitted after the preamble. Each frame contains one data packet.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

Remote-control commands:

SOUR:BB:EVDO:TERM2:MODE ACC  
SOUR:BB:EVDO:TERM2:DCH:CLEN 10

**Data Rate  
(Data Channel) - 1xEV-DO**

Selects the data rate for the data channel.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

Remote-control commands:

SOUR:BB:EVDO:TERM2:MODE ACC  
SOUR:BB:EVDO:TERM2:DCH:DRAT DR19K2

**Data Source  
(Data Channel) - 1xEV-DO**

Selects the data source.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**ZERO  
ONE**

0 data or 1 data is internally generated.

Remote-control command:

SOUR:BB:EVDO:TERM2:DCH:DATA ZERO|ONE

**PNxx**

PRBS data in accordance with the IUT-T with period lengths between  $2^9-1$  and  $2^{23}-1$  are internally generated.

Remote-control commands:

SOUR:BB:EVDO:TERM2:DCH:DATA  
PN9|PN11|PN15|PN16|PN20|PN21|PN23

**PATtern  
Pattern** A user-definable bit pattern with a maximum length of 64 bits is internally generated.

The bit pattern is defined in the Pattern input box.

Remote-control commands:

```
SOUR:BB:EVDO:TERM2:MODE ACC
SOUR:BB:EVDO:TERM2:DCH:DATA PATT
SOUR:BB:EVDO:TERM2:DCH:DATA:PATT
#H3F,8
```

**DLISt  
Select Data List** Data lists will be used. Data lists can be generated internally in the data editor or externally.

Data lists are selected in the **Select Data List** field.

Remote-control commands:

```
SOUR:BB:EVDO:TERM2:MODE ACC
SOUR:BB:EVDO:TERM2:DCH:DATA DLIS
MMEM:CDIR 'D:\datalists
SOUR:BB:EVDO:TERM2:DCH:DATA:DSEL
'datalist.dm_iqd'
```

**Append FCS  
(Data Channel) - 1xEV-DO**

Enables or disables appending a standard Frame Check Sequence (FCS) to the MAC layer packet.

---

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

---

Remote-control command:

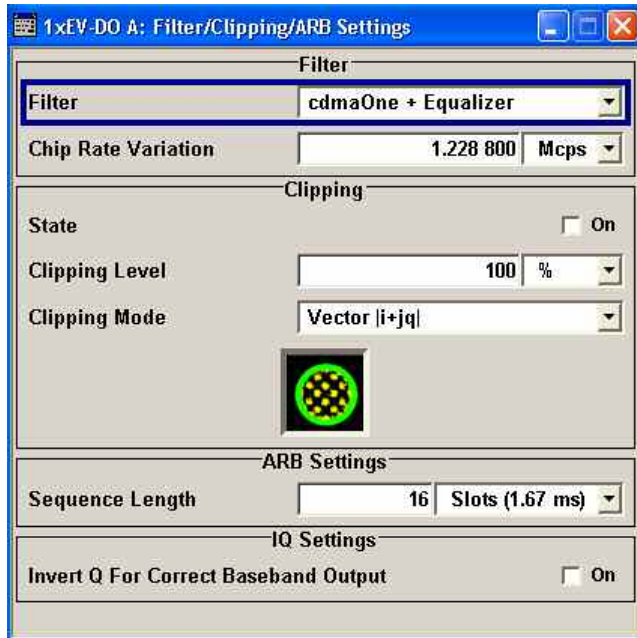
```
SOUR:BB:EVDO:TERM2:DCH:FCS:STAT OFF
```



## Filter/Clipping/ARB Settings - 1xEV-DO

The Filter, Clipping, ARB Settings menu is reached via the 1xEV-DO main menu.

The filter parameters (Filter section), clipping (Clipping section) and the sequence length of the arbitrary waveform component (ARB Settings section) are defined in this menu. Generation of baseband signals according to 1xEV-DO standard by inverting the Q-part of the signal is enabled in the I/Q Settings section.



In the **Filter** section, the settings are made for the baseband filter.

### Filter - 1xEV-DO A

Selects baseband filter.

This opens a selection window containing all the filters available to the instrument.

The filter types are described in Section "[Baseband Filter - Custom Digital Mod](#)".

#### **CdmaOne**

Uplink filter according to standard.

Remote-control command:

SOUR:BB:EVDO:FILT:TYPE CONE

#### **CdmaOne+ Equalizer**

Downlink filter according to standard.

Remote-control command:

SOUR:BB:EVDO:FILT:TYPE COEQ

#### **CdmaOne 705 kHz**

Non-standard filter for the uplink. This filter achieves better adjacent-channel leakage ratio.

Remote-control command:

SOUR:BB:EVDO:FILT:TYPE COF705

#### **CdmaOne 705 kHz+ Equalizer**

Non-standard filter for the downlink. This filter achieves better adjacent-channel leakage ratio.

Remote-control command:

SOUR:BB:EVDO:FILT:TYPE COF

**Roll Off Factor or BxT  
- 1xEV-DO**

Enters the filter parameters.

The filter parameter offered (Roll Off factor or BxT) depends on the currently selected filter type. This parameter is always set to the default for each of the predefined filters.

Remote-control commands:

```
SOUR:BB:EVDO:FILT:PAR:APCO25 0.2
SOUR:BB:EVDO:FILT:PAR:COS 0.35
SOUR:BB:EVDO:FILT:PAR:GAUS 0.5
SOUR:BB:EVDO:FILT:PAR:PGA 0.5
SOUR:BB:EVDO:FILT:PAR:RCOS 0.35
SOUR:BB:EVDO:FILT:PAR:SPH 2
```

**Cut Off Frequency Factor  
- 1xEV-DO**

**(This feature is available for filter parameter Lowpass only.)**

Sets the value for the cut off frequency factor. The cut off frequency of the lowpass filter can be adjusted to reach spectrum mask requirements.

Remote-control command:

```
SOUR:BB:EVDO:FILT:PAR:LPAS 0.5
```

**Chip Rate Variation  
- 1xEV-DO**

Enters the chip rate.

The chip rate entry changes the output clock and the modulation bandwidth.

Remote-control command:

```
SOUR:BB:EVDO:CRAT:VAR 1228800
```

**Impulse Length - 1xEV-DO**

**(For R&S WinIQSIM2 only)**

Displays the number of filter taps. If the check box is activated, the most sensible parameter values are selected. The value depends on the coherence check. If the check box is deactivated, the values can be changed manually.

Remote-control command:

```
SOUR:BB:EVDO:FILT:ILEN:AUTO ON
SOUR:BB:EVDO:FILT:ILEN 120
```

**Oversampling - 1xEV-DO**

**(For R&S WinIQSIM2 only)**

Determines the upsampling factor. If the check box is activated, the most sensible parameter values are selected. The value depends on the coherence check. If the check box is deactivated, the values can be changed manually.

Remote-control command:

```
SOUR:BB:EVDO:FILT:OSAM:AUTO ON
SOUR:BB:EVDO:FILT:OSAM 20
```

The settings for clipping are collected in the **Clipping** section.

**Clipping State - 1xEV-DO**

Switches baseband clipping on and off.

Baseband clipping is a very simple and effective way of reducing the crest factor of the 1xEV-DO signal.

1xEV-DO signals may have very high crest factors particularly with many channels and long sequences. High crest factors entail two basic problems:

- The nonlinearity of the power amplifier (compression) causes intermodulation which expands the spectrum (spectral regrowth).
- Since the level in the D/A converter is relative to the maximum value, the average value is converted with a relatively low resolution. This results in a high quantization noise.

Both effects increase the adjacent-channel power.

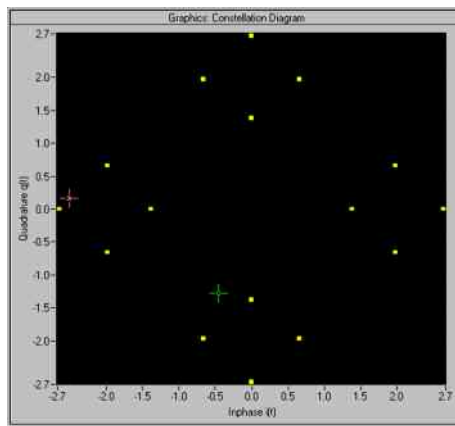
With baseband clipping, all the levels are limited to a settable value (**Clipping Level**). This level is specified as a percentage of the highest peak value. Since clipping is done prior to filtering, the procedure does not influence the spectrum. The EVM however increases.

Since clipping the signal not only changes the peak value but also the average value, the effect on the crest factor is unpredictable. The following table shows the effect of the **Clipping** on the crest factor for typical scenarios.

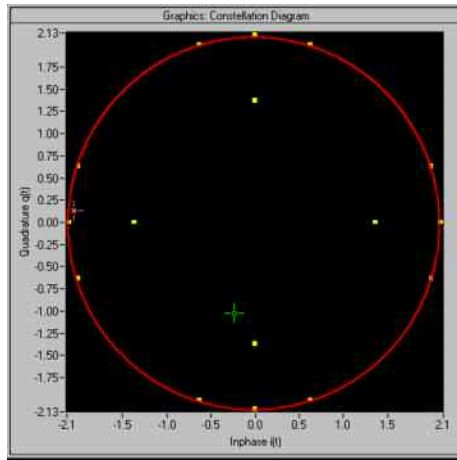
Remote-control command:

```
SOUR:BB:EVDO:CLIP:STAT ON
```

The following pictures demonstrate the affect of clipping with vector mode ( $|i+q|$ ), using a signal configuration with 2 active channels.



Constellation diagram of the signal without clipping, shows the level mapping



Constellation diagram with clipping level 80 %, vector mode ( $|i+q|$ ) The circle emphasizes the changed constellation points.

**Clipping Level- 1xEV-DO**

Sets the limit for clipping.

This value indicates at what point the signal is clipped. It is specified as a percentage, relative to the highest level. 100% indicates that clipping does not take place.

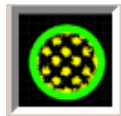
Remote-control command:  
`SOUR:BB:EVDO:CLIP:LEV 50`

**Clipping Mode - 1xEV-DO**

Selects the clipping method. A graphic illustration of the way in which these two methods work is given in the menu.

**Vector  $|i + q|$**

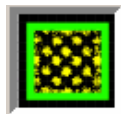
The limit is related to the amplitude  $|i + q|$ . The I and Q components are mapped together, the angle is retained (see also figures above, Clipping State).



Remote-control command:  
`SOUR:BB:EVDO:CLIP:MODE VECT`

**Scalar  $|i| + |q|$**

The limit is related to the absolute maximum of all the I and Q values  $|i| + |q|$ .



The I and Q components are mapped separately, the angle changes.

Remote-control command:  
`SOUR:BB:EVDO:CLIP:MODE SCAL`

The **ARB Settings** section is where the sequence length of the arbitrary waveform component is defined.

**Sequence Length ARB  
- 1xEV-DO**

Changes the sequence length of the arbitrary waveform component of the 1xEV-DO signal in number of slots. This component is calculated in advance and output in the arbitrary waveform generator. It is added to the realtime signal components.

The number of chips is determined from this sequence length. One slot of 1.67ms duration equals 2048 chips.

Remote-control command:  
SOUR:BB:EVDO:SLEN 20

The **I/Q Setting** section is where the baseband signal can be inverted.

**Invert Q for Correct  
Baseband Output  
- 1xEV-DO**

Inverts Q-part of the baseband signal.

**ON**

The signal on the baseband outputs meets the 1xEV-DO standard. In order to generate an RF signal that conforms to the standard, the I/Q Swap function in the I/Q Modulator menu must be enabled (On).

Remote-control command:  
SOUR:BB:EVDO:IQSW:STAT ON

**OFF**

The signal on the baseband outputs does not meet the 1xEV-DO standard. It can however be mixed with other signals from the second baseband without any problem. In order to generate a standards compliant RF signal, the I/Q Swap function in the I/Q Modulator menu must be disabled (Off).

Remote-control command:  
SOUR:BB:EVDO:IQSW:STAT OFF

## Trigger/Marker/Clock - 1xEV-DO A

**Note:**

The trigger, clock, and marker delay functions are available for R&S SMx and R&S AMU instruments only.

The **Trigger/Marker/Clock** menu can be reached via the **1xEV-DO A** main menu.

The **Trigger In** section is where the trigger for the 1xEV-DO signal is set. Various parameters will be provided for the settings, depending on which trigger source - internal or external - is selected. The current status of signal generation (**Running** or **Stopped**) is indicated for all trigger modes.

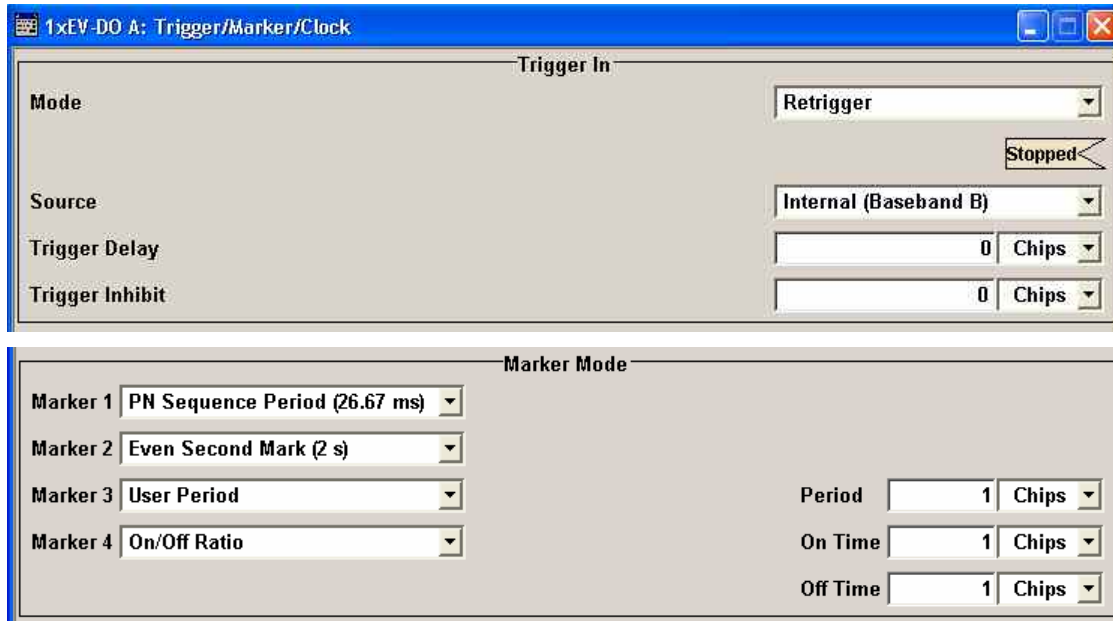
The **Marker Mode** section is where the marker signals at the MARKER output connectors are configured.

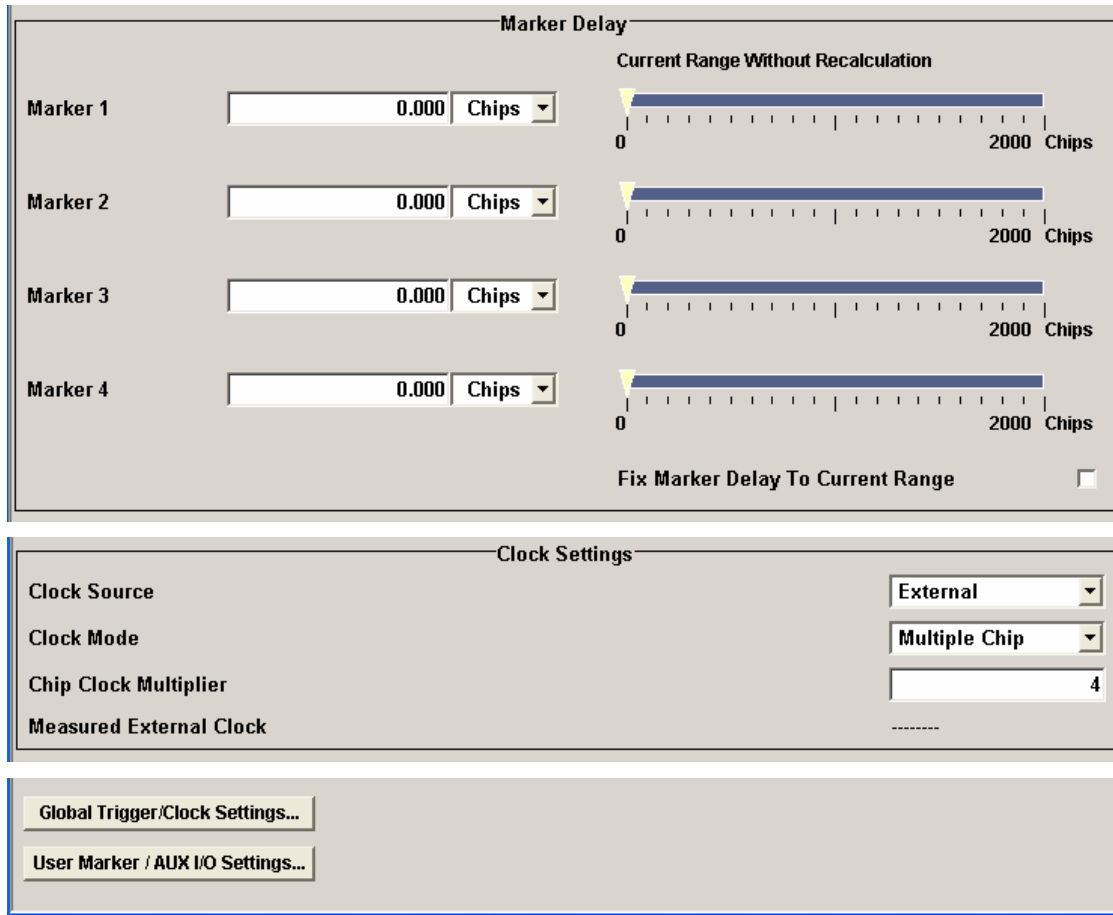
The **Marker Delay** section is where a marker signal delay can be defined, either without restriction or restricted to the dynamic section, i.e., the section in which it is possible to make settings without restarting signal and marker generation.

The **Clock Settings** section is where the clock source is selected and - in the case of an external source - the clock type.

The **Global Trigger/Clock Settings** button leads to a submenu for general trigger and clock settings.

The **UserMarker/AUX I/O** menu leads to a submenu for mapping configurations





The **Trigger In** section is where the trigger for the 1xEV-DO signal is set. The current status of the signal generation is displayed for all trigger modes.

**Trigger Mode - 1xEV-DO (R&S SMx and R&S AMU instruments only)**

Selects trigger mode.

The trigger mode determines the effect of a trigger on the signal generation.

**Auto** The 1xEV-DO signal is generated continuously.

Remote-control command:  
`SOUR:BB:EVDO:SEQ AUTO`

**Retrigger** The 1xEV-DO signal is generated continuously. A trigger event (internal or external) causes a restart.

Remote-control command:  
`SOUR:BB:EVDO:SEQ RETR`

**Armed\_Auto** The 1xEV-DO-Signal signal is generated only when a trigger event occurs. Then the signal is generated continuously.

Button Arm stops signal generation. A subsequent trigger event (internal with Execute Trigger or external) causes a restart.

Remote-control command:  
`SOUR:BB:EVDO:SEQ AAUT`

<b>Armed_Retrigger</b>	<p>The 1xEV-DO-Signal signal is generated only when a trigger event occurs. Then the signal is generated continuously. Every subsequent trigger event causes a restart.</p> <p>Button Arm stops signal generation. A subsequent trigger event (internal with Execute Trigger or external) causes a restart.</p> <p>Remote-control command: SOUR:BB:EVDO:SEQ ARET</p>
<b>Single</b>	<p>The 1xEV-DO signal is generated only when a trigger event occurs. Then the signal is generated once to the length specified at Signal Duration. Every subsequent trigger event (internal with Execute Trigger or external) causes a restart.</p> <p>Remote-control command: SOUR:BB:EVDO:SEQ SING</p>
<b>Signal Duration Unit - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Defines the unit for the entry of the length of the signal sequence to be output in the <b>Single</b> trigger mode. Available units are chip sequence length (CLS), slots or chips.</p> <p>Remote-control commands: SOUR:BB:EVDO:TRIG:SLUN CHIP</p>
<b>Signal Duration - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Defines the length of the signal sequence to be output in the <b>Single</b> trigger mode. The unit of the entry is defined under <b>Signal Duration Unit</b>. It is possible to output deliberately just part of the frame, an exact sequence of the frame, or a defined number of repetitions of the frame.</p> <p>Remote-control commands: SOUR:BB:EVDO:TRIG:SLEN 2000</p>
<b>Running - Stopped - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Displays the status of signal generation for all trigger modes. This display appears only when 1xEV-DO is enabled (<b>State On</b>).</p> <p>Remote-control command: SOUR:BB:EVDO:TRIG:RMOD? Response: RUN</p>
<b>Running</b>	<p>The 1xEV-DO modulation signal is generated; a trigger was (internally or externally) initiated in triggered mode.</p> <p>If Armed_Auto and Armed_Retrigger have been selected, generation of signals can be stopped with the Arm button. A new trigger (internally with Execute Trigger or externally) causes a restart.</p>
<b>Stopped</b>	<p>The signal is not generated, and the instrument waits for a trigger event (internal or external).</p>



**Arm - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Stops signal generation. This button appears only with **Running** signal generation in the **Armed\_Auto** and **Armed\_Retrigger** trigger modes.

Signal generation can be restarted by a new trigger (internally with **Execute Trigger** or externally).

Remote-control command:

SOUR:BB:EVDO:TRIG:ARM:EXEC

**Execute Trigger - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Executes trigger manually. A manual trigger can be executed only when an internal trigger source and a trigger mode other than Auto have been selected.

Remote-control commands:

SOUR:BB:EVDO:TRIG:SOUR INT

SOUR:BB:EVDO:SEQ RETR

SOUR:BB:EVDO:TRIG:EXEC

**Trigger Source - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Selects trigger source. This setting is effective only when a trigger mode other than Auto has been selected.

**Internal**

The trigger event is executed by Execute Trigger.

Remote-control command:

SOUR:BB:EVDO:TRIG:SOUR INT

**Internal (Baseband A/B)**

The trigger event is executed by the trigger signal from the second path (two-path instruments only).

Remote-control command:

SOUR:BB:EVDO:TRIG:SOUR OBAS

**External (TRIGGER 1/2)**

The trigger event is executed with the aid of the active edge of an external trigger signal. The trigger signal is supplied via the TRIGGER 1 or TRIGGER 2 connector.

The polarity, the trigger threshold and the input impedance of the TRIGGER input can be set in the Global Trigger/Clock Settings menu.

Remote-control command:

SOUR:BB:EVDO:TRIG:SOUR EXT | BEXT

**Trigger Delay - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Sets the trigger signal delay in chips on external triggering (or on internal triggering via the second path for two-path instruments)

This enables the R&S Signal Generator to be synchronized with the device under test or other external devices.

**Note:**

*For two-path instruments, the delay can be set separately for each of the two paths.*

Remote-control commands:

```
SOUR:BB:EVDO:TRIG:EXT:DEL 3
SOUR:BB:EVDO:TRIG:OBAS:DEL 3
```

**Trigger Inhibit - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Sets the duration for inhibiting a new trigger event subsequent to triggering. The input is to be expressed in chips.

In the **Retrigger** mode, every trigger signal causes signal generation to restart. This restart is inhibited for the specified number of samples.

This parameter is only available on external triggering (or on internal triggering via the second path for two-path instruments).

**Note:**

*For two-path instruments, the trigger inhibit can be set separately for each of the two paths.*

Remote-control commands:

```
SOUR:BB:EVDO:TRIG:EXT:INH 1000
SOUR:BB:EVDO:TRIG:OBAS:INH 1000
```

The marker output signal for synchronizing external instruments is configured in the **Marker Settings** section **Marker Mode**.

**Marker Mode - 1xEV-DO**

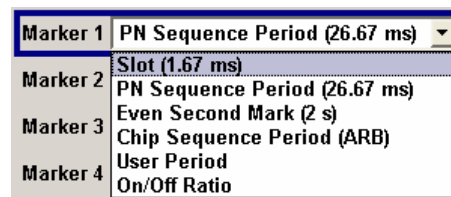
Selects a marker signal for the associated MARKER output.

**Slot (1.67 ms)**

A marker signal is generated at the start of each slot (every 1.67 ms).

Remote-control command:

```
SOUR:BB:EVDO:TRIG:OUTP1:MODE SLOT
```



**PN Sequence Period (26,67 ms)**

A marker signal is generated every 26.67 ms (PN Sequence Period).

Remote-control command:

```
SOUR:BB:EVDO:TRIG:OUTP1:MODE PNSP
```

**Even Second Mark (2 s)** A marker signal is generated every 2 seconds.

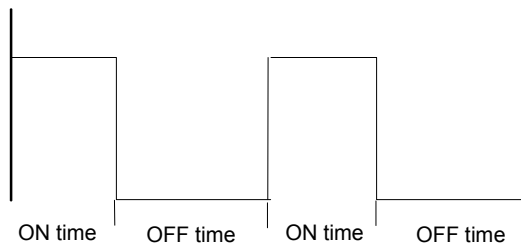
Remote-control command:  
`SOUR:BB:EVDO:TRIG:OUTP1:MODE ESM`

**Chip Sequence Period (ARB)** A marker signal is generated at the beginning of every Arbitrary Waveform sequence (depending on the set sequence length). The marker signal is generated regardless of whether or not an ARB component is actually used.

Remote-control command:  
`SOUR:BB:EVDO:TRIG:OUTP1:MODE CSP`

**On/Off Ratio** A regular marker signal that is defined by an ON/OFF ratio is generated. A period lasts one ON and OFF cycle.

Start of signal



The ON time and OFF time are each expressed as a number of chips and are set in an input field which opens when ON/OFF ratio is selected.

On Time  Chips   
 Off Time  Chips

Remote-control commands:  
`SOUR:BB:EVDO:TRIG:OUTP1:MODE RAT`  
`SOUR:BB:EVDO:TRIG:OUTP1:OFFT 200`  
`SOUR:BB:EVDO:TRIG:OUTP1:ONT 200`

**User Period** A marker signal is generated at the beginning of every user-defined period. The period is defined in **Period**.

Period  Chips

Remote-control commands:  
`SOUR:BB:EVDO:TRIG:OUTP1:MODE USER`  
`SOUR:BB:EVDO:TRIG:OUTP1:PER 614400`

The **Marker Delay** section can be used to set a delay for the markers.

**Note:**

*The marker delay functions are available for R&S SMx and R&S AMU instruments only.*

**Marker x Delay - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Enters the delay between the marker signal at the marker outputs and the start of the signal.

The input is expressed as a number of chips.

If the setting **"Fix marker delay to dynamic range"** is enabled, the setting range is restricted to the dynamic range. In this range the delay of the marker signals can be set without restarting the marker and signal.

Remote-control command:

```
SOUR:BB:EVDO:TRIG:OUTP2:DEL 2
```

**Current Range without Calculation- 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Displays the dynamic range within which the delay of the marker signals can be set without restarting the marker and signal.

Remote-control commands:

```
SOUR:BB:EVDO:TRIG:OUTP2:DEL:MAX?
SOUR:BB:EVDO:TRIG:OUTP2:DEL:MIN?
```

**Fix Marker to Current Range - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Restricts the marker delay setting range to current range. In this range the delay can be set without restarting the marker and signal.

Remote-control command:

```
SOUR:BB:EVDO:TRIG:OUTP:DEL:FIX ON
```

The clock source is selected in the **Clock Settings** section.

---

**Note:**

*The clock functions are available for R&S SMx and R&S AMU instruments only.*

---

**Clock Source - 1xEV-DO**

**(R&S SMx and R&S AMU instruments only)**

Selects the clock source.

**Intern**

**The internal clock reference is used to generate the chip clock.**

Remote-control command:

```
SOUR:BB:EVDO:CLOC:SOUR INT
```

**Extern**

The external clock reference is fed in as the chip clock or multiple thereof via the CLOCK connector.

The chip rate must be correctly set to an accuracy of  $\pm 2\%$  (see data sheet).

The polarity of the clock input can be changed with the aid of **Global Trigger/Clock Settings**. In the case of two-path instruments, this selection applies to path A.

Remote-control command:

```
SOUR:BB:EVDO:CLOC:SOUR EXT
```

<b>Clock Mode - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Enters the type of externally supplied clock.</p>
	<p><b>Chip</b>                    A chip clock is supplied via the CLOCK connector.</p> <p>Remote-control command: SOUR:BB:EVDO:CLOC:MODE CHIP</p>
	<p><b>Multiple</b>                A multiple of the chip clock is supplied via the CLOCK connector; the chip clock is derived internally from this.</p> <p>The Multiplier window provided allows the multiplication factor to be entered.</p> <p>Remote-control command: SOUR:EVDO:CLOC:MODE MCH</p>
<b>Chip Clock Multiplier - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Enters the multiplication factor for clock type <b>Multiple</b>.</p> <p>Remote-control command: SOUR:BB:EVDO:CLOC:MULT 4</p>
<b>Measured External Clock - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Displays the measured frequency of the external clock signal. This enables the user to permanently monitor the frequency of the externally introduced clock.</p> <p>This information is displayed only if the external clock source has been selected.</p> <p>Remote-control command: :CLOC:INP:FREQ?</p>
<b>Global Trigger/Clock Settings - 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Calls the <b>Global Trigger/Clock/Input Settings</b> menu. This menu is used among other things for setting the trigger threshold, the input impedance and the polarity of the trigger inputs TRIGGER 1/2.</p> <p>In the case of two-path instruments these settings are valid for both paths.</p> <p>The parameters in this menu affect all digital modulations and standards, and are described in the section "<a href="#">Global Trigger/Clock/Input Settings – Setup -Environment</a>".</p>
<b>User Marker/AUX I/O Settings – 1xEV-DO</b>	<p><b>(R&amp;S SMx and R&amp;S AMU instruments only)</b></p> <p>Calls the <b>UserMarker/AUX I/O</b> menu. This menu is used for mapping configuration.</p> <p>The parameters in this menu affect all digital modulations and standards, and are described in the section "<a href="#">Global Trigger/Clock/Input Settings – Setup -Environment</a>".</p>



## SOURce:BB:EVDO-Subsystem- Remote-control commands

The commands in the Source:BB:EVDO subsystem are described in four sections, separated into general remote commands, commands for access network settings, commands for traffic channels settings and commands for access terminals settings.

### SOURce:BB:1xEVDo - General Remote-Control Commands

This subsystem contains commands for the primary and general settings of the 1xEV-DO standard. These settings concern activation and deactivation of the standard, setting the transmission direction, filter, clock, trigger and clipping settings, defining the chip rate and the sequence length, as well as the preset and power adjust setting.

The commands for setting the base station and the mobile station are described in separate sections. The commands are divided up in this way to make the extremely comprehensive `SOURce:BB:EVDO` subsystem clearer.

The numerical suffix at `SOURce` distinguishes between path A and path B for two-path instruments:

`SOURce<1>` = path A

`SOURce<2>` = path B

For two-path instruments, the keyword `SOURce` is optional with commands for path A and can be omitted. For path B, the command must include the keyword with the suffix 2.

For one-path instruments, the keyword `SOURce` is optional and can be omitted.

#### SOURce:BB:EVDO - Command Table

Command	Parameter	Default Unit	Comments
[SOURce<[1]2>:]BB:EVDO:CLIPping:LEVel	1 to 100	PCT	
[SOURce<[1]2>:]BB:EVDO:CLIPping:MODE	VECTor   SCALar		
[SOURce<[1]2>:]BB:EVDO:CLIPping:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:CLOCK:MODE	CHIP   MCHip		
[SOURce<[1]2>:]BB:EVDO:CLOCK:MULTIplier	1 to 64		
[SOURce<[1]2>:]BB:EVDO:CLOCK:SOURce	EXTernal   INTernal		
[SOURce<[1]2>:]BB:EVDO:CRATe:VARiation	1 MHz to 5 MHz	Hz (c/s)	
[SOURce<[1]2>:]BB:EVDO:FILTer:ILENght	1 to 128		
[SOURce<[1]2>:]BB:EVDO:FILTer:ILENght:AUTO	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:FILTer:OSAMpling	1 to 32		
[SOURce<[1]2>:]BB:EVDO:FILTer:OSAMpling:AUTO	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:APCO25	0.15 to 2.5		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:COsine	0.00 to 0.99		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:GAUSs	0.15 to 2.50		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:LPASs	0.0 to 2.0		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:PGAus	0.15 to 2.5		
[SOURce<[1]2>:]BB:EVDO:FILTer:PARAmeter:RCOSine	0.0 5 to 0.99		

Command	Parameter	Default Unit	Comments
[SOURce<[1]>:]BB:EVDO:FILTer:PARAMeter:SPHase	0.15 to 2.5		
[SOURce<[1]>:]BB:EVDO:FILTer:TYPE	RCOSine   COSine   GAUSS   LGAUSS PGAUSS   CONE   COF705   LPASS COEQUALizer   COFEQUALizer   EWPSHape   DIRac SPHase   APCO25 RECTangle   ENPSHape		
[SOURce<[1]>:]BB:EVDO:IQSWap:STATe	ON   OFF		
[SOURce<[1]>:]BB:EVDO:LINK	DOWN/FORWard   UP/REVerse		
[SOURce<[1]>:]BB:EVDO:PNOFset	0 to 511		
[SOURce<[1]>:]BB:EVDO:PREDefinedt	USER   ULS1DR9K6   ULS1DR19K2   ULS1DR38K4   ULS1DR76K8   ULS1DR153K6   ULS2PS128LL   ULS2PS256HC   ULS2PS256LL   ULS2PS512LL   ULS2PS768LL   ULS2PS1024LL   ULS2PS1536LL   ULS2PS2048LL   ULS2PS3072LL   ULS2PS4096LL   ULS2PS6144LL   ULS2PS8192LL   ULS2PS12288LL		
[SOURce<[1]>:]BB:EVDO:PRESet			No query
[SOURce<[1]>:]BB:EVDO:SEQuence	AUTO   RETRigger   AAuto   ARETRigger   SINGle		
[SOURce<[1]>:]BB:EVDO:SETTing:CATalog?			Query only
[SOURce<[1]>:]BB:EVDO:SETTing:DELeTe	<file_name>		
[SOURce<[1]>:]BB:EVDO:SETTing:LOAD	<file_name>		
[SOURce<[1]>:]BB:EVDO:SETTing:STORE	<file_name>		
[SOURce<[1]>:]BB:EVDO:SLENgth	1 to 511 frames		
[SOURce<[1]>:]BB:EVDO:STATe	ON   OFF		
[SOURce<[1]>:]BB:EVDO:STIME	0 to (2 <sup>41</sup> -1)		
[SOURce<[1]>:]BB:EVDO:TRIGGer:ARM:EXECute			No query
[SOURce<[1]>:]BB:EVDO:TRIGGer:EXECute			No query
[SOURce<[1]>:]BB:EVDO:TRIGGer[:EXTErnal<[1]>]:DELay	0 to 65 535 chips		
[SOURce<[1]>:]BB:EVDO:TRIGGer[:EXTErnal<[1]>]:INHibit	0 to (2 <sup>26</sup> - 1) chips		
[SOURce<[1]>:]BB:EVDO:TRIGGer:OBASeband:DELay	0 to 65 535 chips		
[SOURce<[1]>:]BB:EVDO:TRIGGer:OBASeband:INHibit	0 to (2 <sup>26</sup> - 1) chips		
[SOURce<[1]>:]BB:EVDO:TRIGGer:OUTPut<[1]...4>:DELay	0 to (2 <sup>24</sup> - 1) chips		
[SOURce<[1]>:]BB:EVDO:TRIGGer:OUTPut:DELay:FIXed	ON   OFF		
[SOURce<[1]>:]BB:EVDO:TRIGGer:OUTPut<[1]...4>:DELay:MAXimum?			Query only
[SOURce<[1]>:]BB:EVDO:TRIGGer:OUTPut<[1]...4>:DELay:MINimum?			Query only



Command	Parameter	Default Unit	Comments
[SOURce<[1] 2>:]BB:EVDO:TRIGger:OUTPut<[1]...4>:MODE	SLOT   PNsPeriod   ESM   CsPeriod   USER   RATIo		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:OUTPut<[1]...4>:OFFTime	0 ... (2 <sup>24</sup> - 1) chips		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:OUTPut<[1]...4>:ONTime	0 ... (2 <sup>24</sup> - 1) chips		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:OUTPut<[1]...4>:PERiod	2 ... (2 <sup>32</sup> - 1) chips		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:RMODe			Query only
[SOURce<[1] 2>:]BB:EVDO:TRIGger:SLENgth	0 ... (2 <sup>32</sup> - 1) chips		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:SLUNit	SLOT   CHIP   SEQuence		
[SOURce<[1] 2>:]BB:EVDO:TRIGger:SOURce	EXTernal   INTernal   BEXTernal   OBASeband		
[SOURce<[1] 2>:]BB:EVDO:VERSion?			Query only
[SOURce<[1] 2>:]BB:EVDO:WAVeform:CREate			No query

**[SOURce<[1]|2>:]BB:EVDO:CLIPping:LEVel 0 to 100 PCT**

The command sets the limit for level clipping (Clipping). This value indicates at what point the signal is clipped. It is specified as a percentage, relative to the highest level. 100% indicates that clipping does not take place.

Level clipping is activated with the command `SOUR:BB:EVDO:CLIP:STAT ON`

**Example:** `BB:EVDO:CLIP:LEV 80PCT`  
 'sets the limit for level clipping to 80% of the maximum level.

`BB:EVDO:CLIP:STAT ON`  
 'activates level clipping.

*RST value	Resolution	SCPI
100 PCT	1	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:CLIPPING:MODE** VECTor | SCALar

The command sets the method for level clipping (Clipping).

**Parameters:**     **VECTor**  
                           The reference level is the amplitude | i+jq |

**SCALar**  
                           The reference level is the absolute maximum of the I and Q values.

**Example:**        BB:EVDO:CLIP:MODE SCAL  
                           'selects the absolute maximum of all the I and Q values as the reference level.  
                           BB:EVDO:CLIP:LEV 80PCT  
                           'sets the limit for level clipping to 80% of this maximum level.  
                           BB:EVDO:CLIP:STAT ON  
                           'activates level clipping.

*RST value	Resolution	SCPI
VECTor	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:CLIPPING:STATE** ON | OFF

The command activates level clipping (Clipping). The value is defined with the command BB:EVDO:CLIPPING:LEVEL, the mode of calculation with the command BB:EVDO:CLIPPING:MODE.

**Example:**        BB:EVDO:CLIP:STAT ON  
                           'activates level clipping.

*RST value	Resolution	SCPI
OFF	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:CLOCK:MODE** CHIP | MCHip

**Note:**  
*This command is available for R&S SMx and R&S AMU instruments only.*

The command enters the type of externally supplied clock (:EVDO:CLOCK:SOURCE EXTERNAL). When MCHIP is used, a multiple of the chip clock is supplied via the CLOCK connector and the chip clock is derived internally from this. The multiplier is entered with the command :BB:EVDO:CLOCK:MULTIPLIER.

For two-path instruments, the only numerical suffix allowed for SOURCE is 1, since the external clock source is permanently allocated to path A.

**Example:**        BB:EVDO:CLOC:MODE CHIP  
                           'selects clock type **Chip**, i.e. the supplied clock is a chip clock.

*RST value	Resolution	SCPI
CHIP	-	Device-specific

[SOURce<[1]|2>:]BB:EVDO:CLOCK:MULTIplier 1 to 64

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command specifies the multiplier for clock type **Multiplied** (:BB:EVDO:CLOCK:MODE MChip) in the case of an external clock source.

For two-path instruments, the only numerical suffix allowed for SOURce is 1, since the external clock source is permanently allocated to path A.

**Example:**

```
BB:EVDO:CLOC:SOUR EXT
'selects the external clock source. The clock is supplied via the CLOCK
connector.

BB:EVDO:CLOC:MODE MCH
'selects clock type Multiplied, i.e. the supplied clock has a rate which is a
multiple of the chip rate.

BB:EVDO:CLOC:MULT 12
'the multiplier for the external clock rate is 12.
```

*RST value	Resolution	SCPI
4	1	Device-specific

[SOURce<[1]|2>:]BB:EVDO:CLOCK:SOURce INTernal | EXTernal

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command selects the clock source.

For two-path instruments, selecting EXTernal is only possible for path A, since the external clock source is permanently allocated to path A.

**Parameters:**

**INTernal**

The internal clock reference is used.

**EXTernal**

The external clock reference is supplied to the CLOCK connector.

Commands :BB:EVDO:CLOCK:MODE and :MULTIplier are used to enter the type of the external clock.

**Example:**

```
BB:EVDO:CLOC:SOUR EXT
'selects the external clock source. The clock is supplied via the CLOCK
connector.

BB:EVDO:CLOC:MODE MCH
'selects clock type Multiplied, i.e. the supplied clock has a rate which is a
multiple of the chip rate.

BB:EVDO:CLOC:MULT 12
'the multiplier for the external clock rate is 12.
```

*RST value	Resolution	SCPI
INTernal	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:CRATE:VARIation** 1Mcps to 5 Mcps

The command enters the output chip rate.

The output chip rate changes the output clock and the modulation bandwidth, as well as the synchronization signals that are output. It does not affect the calculated chip sequence.

**Example:** BB:EVDO:CRAT:VAR 4086001  
'sets the chip rate to 4.08 Mcps.

*RST value	Resolution	SCPI
1.2288	1 Hz	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:ILENgtH** 1...128

**Note:**  
*This command is available for R&S WinIQSIM2 only.*

The command sets the impulse length (number of filter taps).

**Example:** BB:EVDO:FILT:ILEN 10  
'sets the number of filter tabs to 10.

*RST value	Resolution	SCPI
10	1	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:ILENgtH:AUTO** ON | OFF

**Note:**  
*This command is available for R&S WinIQSIM2 only.*

The command activates/deactivates the impulse length state. If activated, the most sensible parameter values are selected. The value depends on the coherence check.

**Example:** BB:EVDO:FILT:ILEN:AUTO ON  
'the most sensible parameters are selected automatically.

*RST value	Resolution	SCPI
ON	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:OSAMpling** 1 to 32

**Note:**  
*This command is available for R&S WinIQSIM2 only.*

The command sets the upsampling factor.

**Example:** BB:EVDO:FILT:OSAM 32  
'sets the upsampling factor to 32.

*RST value	Resolution	SCPI
32	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:OSAMping:AUTO ON | OFF**

**Note:**

*This command is available for R&S WinQSIM2 only.*

The command activates/deactivates the upsampling factor state. If activated, the most sensible parameter values are selected. The value depends on the coherence check. If deactivated, the values can be changed manually.

**Example:**           BB:EVDO:FILT:OSAM:AUTO ON  
                          'the most sensible parameters are selected automatically.'

*RST value	Resolution	SCPI
ON	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:PARAmeter:APCO25 0.05 to 0.99**

The command sets the roll-off factor for filter type APCO25.

**Example:**           BB:EVDO:FILT:PAR:APCO25 0.2  
                          'sets the roll-off factor to 0.2 for filter type APCO25.'

*RST value	Resolution	SCPI
0.20	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:PARAmeter:COSine 0.05 ... 0.99**

The command sets the roll-off factor for the Cosine filter type.

**Example:**           BB:EVDO:FILT:PAR:COS 0.35  
                          'sets the roll-off factor to 0.35 for filter type Cosine.'

*RST value	Resolution	SCPI
0.35	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILT:PARAmeter:GAUSs 0.15 to 2.5**

The command sets the roll-off factor for the Gauss filter type.

**Example:**           BB:EVDO:FILT:PAR:GAUS 0.5  
                          'sets B x T to 0.5 for the Gauss filter type.'

*RST value	Resolution	SCPI
0.5	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILTER:PARAMeter:LPASs** 0.05 to 2.0

The command sets the cut off frequency factor for the Lowpass filter type.

**Example:** BB:EVDO:FILT:PAR:LPAS 0.5  
'the cut of frequency factor is set to 0.5.

*RST value	Resolution	SCPI
0.50		Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILTER:PARAMeter:PGAuss** 0.15 to 2.5

The command sets the roll-off factor for the Pure Gauss filter type.

**Example:** BB:EVDO:FILT:PAR:GAUS 0.5  
'sets B x T to 0.5 for the Pure Gauss filter type.

*RST value	Resolution	SCPI
0.5	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILTER:PARAMeter:RCOSine** 0.05 to 0.99

The command sets the roll-off factor for the Root Cosine filter type.

**Example:** BB:EVDO:FILT:PAR:RCOS 0.22  
'sets the roll-off factor to 0.22 for filter type Root Cosine.

*RST value	Resolution	SCPI
0.22	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILTER:PARAMeter:SPHase** 0.15 to 2.5

The command sets B x T for the Split Phase filter type.

**Example:** BB:EVDO:FILT:PAR:SPH 0.5  
'sets B x T to 0.5 for the Split Phase filter type.

*RST value	Resolution	SCPI
2.00	0.01	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:FILTER:TYPE** RCOSine | COSine | GAUSS | LGAuss | PGAuss | CONE | DIRac  
COF705 | COEQualizer | COFequalizer | APCO25 | SPHase | RECTangle | LPASs | ENPShape | EWPSshape

The command selects the filter type. The filter types are described in "[Baseband Filter - Custom Digital Mod](#)".

**Example:** BB:EVDO:FILT:TYPE CONE  
'sets the filter type CdmaOne. This filter type is defined by the standard for the uplink.

*RST value	Resolution	SCPI
Downlink:COEQ Uplink: CONE	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:IQSWAP:STATE ON | OFF**

This command inverts the Q-part of the baseband signal if set to ON. The signal on the baseband outputs meets the 1xEV-DO standard. In order to generate an RF signal that conforms to the standard, the **I/Q Swap** function in the **I/Q Modulator** menu must be enabled (**On**) (SOURCE:IQ:SWAP ON).

**Example:** BB:EVDO:IQSW:STAT ON  
'inverts the Q-part of the baseband signal.

*RST value	Resolution	SCPI
OFF	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:LINK FORWARD/DOWN | REVERSE/UP**

The command defines the transmission direction. The settings of the traffic channels per user and the access terminals are provided in the following menu section in accordance with the selection.

**Example:** BB:EVDO:LINK DOWN  
'the transmission direction selected is base station to access terminal. The signal corresponds to that of a base station.

*RST value	Resolution	SCPI
DOWN/FORWARD	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:PNOffset 0 .. 511**

Sets the PN Offset of the 1xEV-DO signal.

**Example:** BB:EVDO:PNOffset 10  
'sets the PN offset to 10.

*RST value	Resolution	SCPI
0	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:PREDEFINED USER | ULS1DR9K6 | ULS1DR19K2 | ULS1DR38K4 | ULS1DR76K8 | ULS1DR153K6 | ULS2PS128LL | ULS2PS256HC | ULS2PS256LL | ULS2PS512LL | ULS2PS768LL | ULS2PS1024LL | ULS2PS1536LL | ULS2PS2048LL | ULS2PS3072LL | ULS2PS4096LL | ULS2PS6144LL | ULS2PS8192LL | ULS2PS12288LL**

Sets the UL setting of Terminal 1 to one of the predefined configurations.

The predefined settings are made according to 3GPP2 C.S0032-A to allow easy receiver testing.

**Parameters:**

- USER**  
there are no predefined settings
- ULS1DR9K6**  
UL, Subtype 1, 9.6 kbps.
- ULS1DR19K2**  
UL, Subtype 1, 19.2 kbps.
- ULS1DR38K4**  
UL, Subtype 1, 38.4 kbps.

- ULS1DR76K8**  
UL, Subtype 1, 76.8 kbps.
- ULS1DR153K6**  
UL, Subtype 1, 153.6 kbps.
- ULS2PS128LL**  
UL, Subtype 2, 128 bits payload, Low Latency.
- ULS2PS256HC**  
UL, Subtype 2, 256 bits payload, Hight Capacity.
- ULS2PS256LL**  
UL, Subtype 2, 256 bits payload, Low Latency.
- ULS2PS512LL**  
UL, Subtype 2, 512 bits payload, Low Latency.
- ULS2PS768LL**  
UL, Subtype 2, 768 bits payload, Low Latency.
- ULS2PS1024LL**  
UL, Subtype 2, 1024 bits payload, Low Latency.
- ULS2PS1536LL**  
UL, Subtype 2, 1536 bits payload, Low Latency.
- ULS2PS2048LL**  
UL, Subtype 2, 2048 bits payload, Low Latency.
- ULS2PS3072LL**  
UL, Subtype 2, 3072 bits payload, Low Latency.
- ULS2PS4096LL**  
UL, Subtype 2, 4096 bits payload, Low Latency.
- ULS2PS6144LL**  
UL, Subtype 2, 6144 bits payload, Low Latency.
- ULS2PS8192LL**  
UL, Subtype 2, 8192 bits payload, Low Latency.
- ULS2PS12288LL**  
UL, Subtype 2, 12288 bits payload, Low Latency.

**Example:**

```
BB:EVDO:PRED ULS2PS256HC
'sets the UL settings of Terminal 1 to UL of Subtype 2 with 256 bits payload
and Hight Capacity.

BB:EVDO:TERM1:SUBT?
'Response: S2.

BB:EVDO:TERM1:DCH:PACK1:PSIZ?
'Response: 256
```

*RST value	Resolution	SCPI
USER	-	Device-specific



**[SOURce<[1]|2>:]BB:EVDO:PRESet**

The command produces a standardized default for the 1xEV-DO standard. The settings correspond to the \*RST values specified for the commands.

This command triggers an action and therefore has no \*RST value and no query form.

**Example:**           BB:EVDO:PRES  
'resets all the 1xEV-DO settings to default values.

*RST value	Resolution	Dependencies	SCPI
-	-	All 1xEV-DO settings are preset. An overview is provided in "Set to Default"	Device-specific

**[SOURce<[1]|2>:]BB:EVDO:SEQuence** AUTO | RETRigger | AAUTo | ARETrigger | SINGLE**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command selects the trigger mode.

**Parameters:**    **AUTO**

The modulation signal is generated continuously.

**RETRigger**

The modulation signal is generated continuously. A trigger event (internal or external) causes a restart.

**AAUTo**

The modulation signal is generated only when a trigger event occurs. After the trigger event the signal is generated continuously. Signal generation is stopped with command `SOUR:BB:EVDO:TRIG:ARM:EXEC` and started again when a trigger event occurs.

**ARETrigger**

The modulation signal is generated only when a trigger event occurs. The device automatically toggles to RETRIG mode. Every subsequent trigger event causes a restart.

Signal generation is stopped with command

`SOUR:BB:EVDO:TRIG:ARM:EXEC` and started again when a trigger event occurs.

**SINGLE**

The modulation signal is generated only when a trigger) event occurs. After the trigger event the signal is generated once to the set sequence length (`SOUR:BB:EVDO:TRIG:SLen`). Every subsequent trigger event causes a restart.

**Example:**           BB:EVDO:SEQ AAUT  
'sets the **Armed\_auto** trigger mode; the device waits for the first trigger (e.g. with \*TRG) and then generates the signal continuously.

*RST value	Resolution	SCPI
AUTO	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:SETTING:CATalog?**

This command reads out the files with 1xEV-DO settings in the default directory. The default directory is set using command `MMEM:CDIRectory`. A path can also be specified, in which case the files in the specified directory are read. Only files with the file extension `*.1xevdo` will be listed.

The command is a query command and therefore has no `*RST` value.

**Example:** `"MMEM:CDIR 'D:\user\1xEVDO`  
`'sets the default directory to D:\user\1xEVDO.`  
`BB:EVDO:SETT:CAT?`  
`'reads out all the files with 1xEV-DO settings in the default directory.`  
**Response:** `"'1xEVDO_1', '1xEVDO_2'`  
`'the files '1xEVDO_1' and '1xEVDO_2' are available.`

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:SETTING:DElete <file\_name>**

This command deletes the selected file with 1xEV-DO settings. The directory is set using command `MMEM:CDIRectory`. A path can also be specified, in which case the files in the specified directory are read. The file extension may be omitted. Only files with the file extension `*.1xevdo` will be deleted.

This command triggers an event and therefore has no `*RST` value and no query form.

**Example:** `BB:EVDO:SETT:DEL '1xEV_DO_UP`  
`'deletes file '1xEV_DO'.`

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:SETTING:LOAD <file\_name>**

This command loads the selected file with 1xEV-DO settings. The directory is set using command `MMEM:CDIRectory`. A path can also be specified, in which case the files in the specified directory are read. The file extension may be omitted. Only files with the file extension `*.1xevdo` will be loaded.

This command triggers an event and therefore has no `*RST` value and no query form.

**Example:** `BB:EVDO:SETT:LOAD '1xEVDO_UP'`  
`'loads file '1xEVDO_UP'.`

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:SETTING:STORE <file\_name>**

This command stores the current 1xEV-DO settings into the selected file. The directory is set using command `MMEM:CDIRECTORY`. A path can also be specified, in which case the files in the specified directory are read. Only the file name has to be entered. 1xEV-DO settings are stored as files with the specific file extensions **\*.1xevdo**.

This command triggers an event and therefore has no \*RST value and no query form.

**Example:** `BB:EVDO:SETT:STOR '1xEVDO_UP'`  
 'stores the current 1xEV-DO settings into file '1xEVDO\_UP'.

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:SLENGTH 1 to 65536 slots**

The command sets the sequence length of the arbitrary waveform component of the 1xEV-DO signal in number of frames. This component is calculated in advance and output in the arbitrary waveform generator. It is added to the real-time signal components.

The number of chips is determined from this sequence length. One slot of 1.67ms duration equals 2048 chips.

**Example:** `BB:EVDO:SLEN 20`  
 'sets the sequence length to 20 slots, 1.67ms each.

*RST value	Resolution	SCPI
16 slots, 1.67ms each	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:STATE ON | OFF**

The command activates modulation in accordance with the 1xEV-DO standard. Activating this standard deactivates all the other digital standards and digital modulation modes (in case of two-path instruments, this affects the same path).

**Example:** `BB:EVDO:STAT ON`  
 'activates modulation in accordance with the 1xEV-DO standard.

*RST value	Resolution	Dependencies	SCPI
OFF	-	BB:EVDO:STAT ON deactivates the other standards and digital modulation.	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:STIME 0 .. (2^41-1)**

Sets the System Time value of the 1xEV-DO signal and the base station. The System Time value is expressed in units of 1.67 ms intervals (80 ms/ 48).

**Note:**  
*In uplink, the value selected for system time must be multiple of 16.*

**Example:**

```
BB:EVDO:LINK DOWN
    'the transmission direction selected is base station to access terminal. The
    signal corresponds to that of a base station.

BB:EVDO:STIME 10
    'sets the system time to 10.

BB:EVDO:LINK UP
    'the transmission direction selected is access terminal to base station. The
    signal corresponds to that of a access terminal.

BB:EVDO:STIME 32
    'sets the system time to 32.
```

*RST value	Resolution	SCPI
0	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:ARM:EXECUTE**

**Note:**  
*This command is available for R&S SMx and R&S AMU instruments only.*

The command stops signal generation for trigger modes Armed\_Auto and Armed\_Retrigger. A subsequent internal or external trigger event restart signal generation.

This command triggers an event and therefore has no \*RST value and no query form.

**Example:**

```
BB:EVDO:TRIG:SOUR INT
    'sets internal triggering.

BB:EVDO:TRIG:SEQ ARET
    'sets Armed_Retrigger mode, i.e. every trigger event causes signal generation
    to restart.

BB:EVDO:TRIG:EXEC
    'executes a trigger, signal generation is started.

BB:EVDO:TRIG:ARM:EXEC
    'signal generation is stopped.

BB:EVDO:TRIG:EXEC
    'executes a trigger, signal generation is started again.
```

*RST value	Resolution	SCPI
-	-	Device-specific

[SOURce<[1]|2>:]BB:EVDO:TRIGger:EXECute

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command executes a trigger. The internal trigger source must be selected using the command :BB:EVDO:TRIG:SOUR INT and a trigger mode other than AUTO must be selected using the command :BB:EVDO:TRIG:SEQ.

This command triggers an event and therefore has no \*RST value and no query form.

**Example:** BB:EVDO:TRIG:SOUR INT  
                   'sets internal triggering.  
                   BB:EVDO:TRIG:SEQ RETR  
                   'sets Retrigger mode, i.e. every trigger event causes signal generation to restart.  
                   BB:EVDO:TRIG:EXEC  
                   'executes a trigger.

*RST value	Resolution	SCPI
-	-	Device-specific

[SOURce<[1]|2>:]BB:EVDO:TRIGger[:EXTernal<[1]|2>]:DELay 0 to 65 535 chips

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command specifies the trigger delay (expressed as a number of chips)for external triggering. The numeric suffix to EXTernal distinguishes between the external trigger via the TRIGGER 1 (suffix 1) and TRIGGER 2 (suffix 2) connector.

**Example:** BB:EVDO:TRIG:SOUR EXT  
                   'sets an external trigger via the TRIGGER 1 connector.  
                   BB:EVDO:TRIG:DEL 50  
                   'sets a delay of 50 symbols for the trigger.

*RST value	Resolution	SCPI
0 chips	1 chip	Device-specific

**[SOURce<[1]2>:]BB:EVDO:TRIGger[:EXtErnal<[1]2>]:INHibit** 0 to 67 108 863 chips

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command specifies the number of chips by which a restart is to be inhibited following a trigger event. This command applies only in the case of external triggering. The numeric suffix to EXtErnal distinguishes between the external trigger via the TRIGGER 1 (suffix 1) and TRIGGER 2 (suffix 2) connector.

**Example:**           BB:EVDO:TRIG:SOUR EXT  
                              'selects an external trigger via the TRIGGER 1 connector.  
  
                              BB:EVDO:TRIG:INH 200  
                              'sets a restart inhibit for 200 chips following a trigger event.

*RST value	Resolution	SCPI
0 chips	1 chip	Device-specific

**SOURce<[1]2>:]BB:EVDO:TRIGger:OBASeband:DELay** 0 to 65 535 chips

**Note:**

*This command is available for R&S SMx and R&S AMU two-path instruments only.*

The command specifies the trigger delay (expressed as a number of chips) for triggering by the trigger signal from the second path (two-path instruments only).

**Example:**           BB:EVDO:TRIG:SOUR OBAS  
                              'sets for path A the internal trigger executed by the trigger signal from the second path (path B).  
  
                              BB:EVDO:TRIG:OBAS:DEL 50  
                              'sets a delay of 50 symbols for the trigger.

*RST value	Resolution	SCPI
0 chips	1 chip	Device-specific

**SOURce<[1]2>:]BB:EVDO:TRIGger:OBASband:INHibit** 0 to 67 108 863 chips

**Note:**

*This command is available for R&S SMx and R&S AMU two-path instruments only.*

The command specifies the number of chips by which a restart is to be inhibited following a trigger event. This command applies only for triggering by the second path.

**Example:**           BB:EVDO:TRIG:SOUR OBAS  
                              'sets for path A the internal trigger executed by the trigger signal from the second path (path B).  
  
                              BB:EVDO:TRIG:INH 200  
                              'sets a restart inhibit for 200 chips following a trigger event.

*RST value	Resolution	SCPI
0 chips	1 chip	Device-specific

[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT<[1]...4>:DELAY 0 to (2<sup>32</sup> - 1) chips

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command defines the delay between the signal on the marker outputs and the start of the signal, expressed in terms of chips. Command :BB:EVDO:TRIGGER:OUTPUT:DELAY:FIXED can be used to restrict the range of values to the dynamic range, i.e. the range within which a delay of the marker signals can be set without restarting the marker and signal.

**Example:** BB:EVDO:TRIG:OUTP2:DEL 16000  
'sets a delay of 16000 chips for the signal on connector MARKER 2.

*RST value	Resolution	SCPI
0	1 Chip	Device-specific

[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT:DELAY:FIXED ON | OFF

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command restricts the marker delay setting range to current range. In this range the delay can be set without restarting the marker and signal. If a delay is entered in setting ON but is outside this range, the maximum possible delay is set and an error message is generated.

The numeric suffix in OUTPUT has no significance for this command, since the setting always affects every marker.

**Example:** BB:EVDO:TRIG:OUTP:DEL:FIX ON  
'restricts the marker signal delay setting range to the dynamic range.

*RST value	Resolution	SCPI
OFF	-	Device-specific

[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT<[1]...4>:DELAY:MAXIMUM?

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command queries the maximum marker delay for setting :BB:EVDO:TRIG:OUTP:DEL:FIX ON.

The command is a query only and therefore has no \*RST value.

**Example:** BB:EVDO:TRIG:OUTP:DEL:FIX ON  
'restricts the marker signal delay setting range to the dynamic range.

BB:EVDO:TRIG:OUTP:DEL:MAX  
'queries the maximum of the dynamic range.

Response: 20000  
'the maximum for the marker delay setting is 20000 chips.

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURce<[1]|2>:]BB:EVDO:TRIGger:OUTPut<[1] to 4>:DELay:MINimum?**

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command queries the minimum marker delay for setting  
:BB:EVDO:TRIGger:OUTPut:DELay:FIXed ON.

The command is a query only and therefore has no \*RST value.

**Example:** BB:EVDO:TRIG:OUTP:DEL:FIX ON  
'restricts the marker signal delay setting to the dynamic range.  
BB:EVDO:TRIG:OUTP:DEL:MIN  
'queries the minimum of the dynamic range.  
Response: 0  
'the minimum for the marker delay setting is 0 symbols.

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURce<[1]|2>:]BB:EVDO:TRIGger:OUTPut<[1]...4>:MODE SLOT | PNSPeriod | ESM | CSPeriod | USER | RATio**

The command defines the signal for the selected marker output

**Parameters:**

- SLOT**  
A marker signal is generated at the start of each slot (every 1.67 ms).
- PNSPeriod**  
A marker signal is generated every 26.67 ms (PN Sequence Period).
- ESM**  
A marker signal is generated every 2 s (even second mark).
- CSPeriod**  
A marker signal is generated at the start of each arbitrary waveform sequence (depending on the set sequence length). The marker signal is also generated if the signal contains no ARB.
- RATio**  
A regular marker signal corresponding to the Time Off / Time On specifications in the commands  
SOURce:BB:EVDO:TRIGger:OUTPut:OFFTime and  
SOURce:BB:EVDO:TRIGger:OUTPut:ONTime is generated.
- USER**  
A marker signal is generated at the beginning of every user-defined period. The period is defined with command  
SOUR:BB:EVDO:TRIG:OUTP:PERiod.

**Example:** BB:EVDO:TRIG:OUTP2:MODE ESM  
'selects the even second mark clock (every 2 seconds) on output MARKER 2.

*RST value	Resolution	SCPI
SLOT	-	Device-specific



**[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT<[1] to 4>:OFFTime** 1 to  $2^{24} - 1$  (16 777 215) chips

The command sets the number of chips in a period (ON time + OFF time) during which the marker signal in setting `SOURCE:BB:EVDO:TRIGGER:OUTPUT:MODE RATIO` on the marker outputs is OFF.

**Example:** `BB:EVDO:TRIG:OUTP2:OFFT 2000`  
'sets an OFF time of 2000 chips for marker signal 2 on path A.

`BB:EVDO:TRIG:OUTP2:OFFT 2000`  
'sets an OFF time of 2000 chips for marker signal 2.

`BB:EVDO:TRIG:OUTP2:OFFT 2000`  
'sets an OFF time of 2000 chips for marker signal 2.

*RST value	Resolution	SCPI
1 chip	1	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT<[1]...4>:ONTime** 1 ...  $2^{24} - 1$  (16 777 215) chips

The command sets the number of chip in a period (ON time + OFF time) during which the marker signal in setting `SOURCE:BB:EVDO:TRIGGER:OUTPUT:MODE RATIO` on the marker outputs is ON.

**Example:** `BB:EVDO:TRIG:OUTP2:ONT 2000`  
'sets an ON time of 2000 chips for marker 2.

*RST value	Resolution	SCPI
1 chip	1	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TRIGGER:OUTPUT<[1]...4>:PERIOD** 2 ... ( $2^{24}-1$ ) chips

The command sets the repetition rate for the signal at the marker outputs, expressed in terms of chips. The setting is only valid for selection `USER` in `:BB:EVDO:TRIG:OUTP:MODE`.

**Example:** `BB:EVDO:TRIG:OUTP2:MODE USER`  
'selects the user marker for the signal on connector MARKER 2.

`BB:EVDO:TRIG:OUTP2:PER 1600`  
'sets a period of 1600 chips, i.e. the marker signal is repeated every 1600th chip.

*RST value	Resolution	SCPI
1 chip	1 chip	Device-specific

[SOURce<[1]|2>:]BB:EVDO:TRIGger:RMODE?

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command queries the current status of signal generation for all trigger modes with 1xEV-DO modulation on.

The command is a query command and therefore has no \*RST value.

**Parameter:**       **RUN**  
                           the signal is generated. A trigger event occurred in the triggered mode.

**STOP**  
                           the signal is not generated. A trigger event did not occur in the triggered modes, or signal generation was stopped by the command  
                           :BB:EVDO:TRIG:ARM:EXECute (armed trigger modes only).

**Example:**       SOUR2:BB:EVDO:TRIG:SOUR EXT  
                           'sets external triggering via the TRIGGER 1 connector for path B of a two-path instrument.

BB:EVDO:TRIG:MODE ARET  
                           'selects the Armed\_Retrigger mode.

BB:EVDO:TRIG:RMODE?  
                           'queries the current status of signal generation.

Response: RUN  
                           'the signal is generated, an external trigger was executed.

*RST value	Resolution	SCPI
-	-	Device-specific

[SOURce<[1]|2>:]BB:EVDO:TRIGger:SLENGth 1 to 2^32-1 (4 294 967 295) chips

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command defines the length of the signal sequence to be output in the **Single** trigger mode (SOUR:BB:EVDO:SEQ SING). The unit is defined with command SOUR:BB:EVDO:TRIG:SLUNit. It is then possible to output deliberately just part of the frame, an exact sequence of the frame, or a defined number of repetitions of the frame.

**Example:**       BB:EVDO:SEQ SING  
                           'sets trigger mode Single.

BB:EVDO:TRIG:SLUN CHIP  
                           'sets unit chips for the entry of sequence length.

BB:EVDO:TRIG:SLEN 200  
                           'sets a sequence length of 200 chips. The first 200 chips of the current frame will be output after the next trigger event.

*RST value	Resolution	SCPI
1 CSL	-	Device-specific

**[SOURCE<[1]|2>:BB:EVDO:TRIGGER:SLUNIT SLOT | CHIP | SEQUENCE**

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command defines the unit for the entry of the length of the signal sequence (SOURCE:BB:EVDO:TRIG:SLEN) to be output in the **Single** trigger mode (SOURCE:BB:EVDO:SEQ SING).

**Example:** BB:EVDO:SEQ SING  
                   'sets trigger mode Single.  
                   BB:EVDO:TRIG:SLUN SLOT  
                   'sets unit slots for the entry of sequence length.  
                   BB:EVDO:TRIG:SLEN 2  
                   'sets a sequence length of 2 frames. The current frame will be output twice after the next trigger event.

*RST value	Resolution	SCPI
SEQUENCE	-	Device-specific

**[SOURCE<[1]|2>:BB:EVDO:TRIGGER:SOURCE INTERNAL | EXTERNAL | BEXTERNAL | OBASBAND**

**Note:**

*This command is available for R&S SMx and R&S AMU instruments only.*

The command selects the trigger source.

**Parameter: INTERNAL**  
 Triggering is executed by means of the Trigger command BB:EVDO:TRIGGER:EXECUTE or \*TRG in the case of remote control and by means of **Execute Trigger** in the case of manual operation.

**EXTERNAL**  
 Triggering is executed by means of the signal on the TRIGGER 1 connector.

**BEXTERNAL**  
 Triggering is executed by means of the signal on the TRIGGER 2 connector.

**OBASBAND**  
 Triggering is executed by means of the trigger signal from the second path (two-path instruments only).

**Example:** BB:EVDO:TRIG:SOUR EXT  
                   'sets external triggering via the TRIGGER 1 connector.

*RST value	Resolution	SCPI
INTERNAL	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:VERSION?**

The command queries the version of the 1xEV-DO standard underlying the definitions

The command is a query command and therefore does not have an \*RST value. The numerical suffix at SOURCE has no significance for this command and should not be specified.

**Example:** BB:EVDO:VERS?  
 'queries the 1xEV-DO version.  
 Response: 'Release A'  
 '1xEV-DO Release A'

*RST value	Resolution	SCPI
-	-	Device-specific

**[SOURCE<[1]|2>:]BB:EVDO:WAVEFORM:CREATE <file\_name>**

This command creates a waveform using the current settings of the **1xEV-DO** menu. The file name is entered with the command. The file is stored with the predefined file extension **\*.wv**. The file name and the directory it is stored in are user-definable.

This command triggers an event and therefore has no \*RST value and no query form.

**Example:** MMEM:CDIR 'D:\waveform'  
 'sets the default directory to D:\waveform.  
 BB:EVDO:WAV:CRE '1xEV\_DO'  
 'creates the waveform file 1xEV\_DO.wv in the default directory.

*RST value	Resolution	SCPI
-	-	device-specific

## SOURce:BB:EVDO - Access Network Settings

Command	Parameter	Default Unit	Comments
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CCHannel:PSOFset	0 to 3		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CCHannel:RATE	DR38K4   DR76K8		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CCHannel:REVision:MAXimum	0 to 255		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CCHannel:REVision:MINimum	0 to 255		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CCHannel:STATE	ON   OFF		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:CPMode	ON   OFF		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:OUCount	1 .. 110 (physical layer subtype 2) 1 to 55 (physical layer subtype 0&1)		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:PCHannel:STATE	ON		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:RAB:LENGth	RL8   RL16   RL32   RL64		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:RAB:LEVel	-25 to -7		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:RAB:OFFSet	0 to 7		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:RAB:STATE	ON   OFF		
[SOURce<[1] 2>:]BB:EVDO:ANETwork:SUBType	S1   S2		

### [SOURce<[1]|2>:]BB:EVDO:ANETwork:CCHannel:PSOFset 0 to 3

Sets the offset (in slots) from the start of control channel cycle to the start of the synchronous message capsule that contains the Sync Message.

**Example:** BB:EVDO:ANET:CCH:PSOF 2  
'sets the packet start offset for the control channel to 2.

*RST value	Resolution	SCPI
0	-	device-specific

### [SOURce<[1]|2>:]BB:EVDO:ANETwork:CCHannel:RATE DR38K4 | DR76K8

Sets the rate that the control channel messages are transmitted at.

**Example:** BB:EVDO:ANET:CCH:RATE DR76K8  
'sets the control channel rate to 76.8 kbps.

*RST value	Resolution	SCPI
38.4 kbps	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:CCHannel:REVision:MAXimum 0 to 255**

Sets the value of the maximum revision field within the control channel message.

**Example:** BB:EVDO:ANET:CCH:REV:MAX 10  
'sets the value of the maximum revision field to 10.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:CCHannel:REVision:MINimum 0 .. 255**

Sets the value of the minimum revision field within the control channel message.

**Example:** BB:EVDO:ANET:CCH:REV:MIN 1  
'sets the value of the minimum revision field to 1.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:CCHannel:STATe ON | OFF**

Enables or disables the control channel messages.  
The only control channel message that is ever sent is the Sync Message.  
When this is enabled, the control channel messages will have the highest priority for placement within the slots. The Sync Message will be updated constantly, even when the control channel is not enabled.

**Example:** BB:EVDO:ANET:CCH:STAT ON  
'enables the control channel message.

*RST value	Resolution	SCPI
OFF	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:CPMode ON | OFF**

Enables or disables a special mode within the 1xEV-DO generator.

**Note:**  
*During the special mode, all other parameters do not affect the signal output.*

**Parameter:**      **ON**  
Enables working in special mode. In this mode, the 1xEV-DO generator will generate a pilot signal with a set of MAC channels only. The data part of the slots is inactive.

**OFF**  
Selects normal operation.

**Example:** BB:EVDO:ANET:CPM ON  
'enables the special mode.

*RST value	Resolution	SCPI
OFF	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:ANETwork:OUCOUNT** 0 to 110 (for physical layer type 2) | 0 to 55 (for physical layer subtype 0&1)

Sets the number of additional users (beyond the four defined users) that appear in the MAC Channel. These additional users will never have a packet addressed to them, but are used to fill in the MAC channel code domain. These Other Users are used to evenly distribute the excess power (beyond what is required by the User 1..4 and RAB channels).

**Example:** BB:EVDO:ANET:OUC 5  
'sets the number of additional users to 5.

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:ANETwork:PCHannel:STATe?**

Displays the state of the pilot channel. Pilot channel is transmitted by sector on each active forward channel. It is present always and transmitted at the full sector power.

**Example:** BB:EVDO:ANET:PCH:STAT?  
'displays the state of the pilot channel.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:ANETwork:RAB:LENGth** RL8 | RL16 | RL32 | RL64

Sets the duration (in slots) of a Reverse Activity bit.

**Note:**  
*This parameter is available for physical layer subtype 0&1 only.*

**Example:** BB:EVDO:ANET:RAB:LENG RL16  
'sets the duration of the Reverse Activity Bit (RAB) to 16 slots.

*RST value	Resolution	SCPI
8	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:ANETwork:RAB:LEVeI** -25 to -7

Sets the power within the MAC block for the Reverse Activity channel.

**Example:** BB:EVDO:ANET:RAB:LEV -7.0  
'sets the power of the MAC block for the Reverse Activity Channel to -7.0 dB.

*RST value	Resolution	SCPI
-7.0	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:RAB:OFFSet 0 to 7**

Sets the starting time offset of the Reverse Activity bit in slots. The command is specified in Reverse Activity Length/8 units.

The RA bit starts when the following equation is satisfied:

System Time mod RABlength = RABOffset,  
 where System Time is expressed in slots.

**Note:**

*This parameter is available for physical layer subtype 0&1 only.*

**Example:** BB:EVDO:ANET:RAB:OFFS 1  
 'sets the starting time offset of the Reverse Activity bit to 1.

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:RAB:STATe ON | OFF**

Activates or deactivates the reverse activity bit (RAB).

**Example:** BB:EVDO:ANET:RAB:STAT ON  
 'activates the Reverse Activity Bit.

*RST value	Resolution	SCPI
OFF	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:ANETwork:SUBType S1 | S2**

Selects the physical layer subtype.

**Note:**

*The physical layer subtype settings can be queried per user.*

**Example:** BB:EVDO:ANET:SUBT S2  
 'sets the physical layer subtype to 2.  
 BB:EVDO:USER3:SUBT?  
 'queries the physical layer settings for user 3.

*RST value	Resolution	SCPI
2	-	device-specific



## SOURce:BB:EVDO - Configure Traffic User 1 to 4

Command	Parameter	Default Unit	Comments
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:DATA:PATtern	<bit pattern>		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:DRCLock:LENGth	DL1   DL4   DL8   DL16   DL32		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:DRCLock:OFFSet	0 to 15		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:DRCLock:PERiod	DP0   DP4   DP8   DP16		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:DRCLock:STATe	ON   OFF		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:HARQ:MODE	OFF   ACK   NAK		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:IFACTor	1to 4		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:MAC:INDex	5 .. 63 (physical layer subtype 0&1) 6 .. 63, 72 .. 127 (physical layer subtype 2)		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:MAC:LEVel	-25 to -7		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:PACKet:COUNT	0 to 65536		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:PACKet:INFinite	ON   OFF		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:PACKet:SOFFset	0 to 255		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:PSIZe	PS128   PS256   PS512   PS1024   PS 1536   PS2048   PS3072   PS4096   PS5120   PS6144   PS8192   PS12288		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RATE	DR4K8   DR9K6   DR19K2   DR38K4   DR76K8   DR153K6   DR307K2   DR614K4   DR921K6   DR1228K8   DR1536K   DR1843K2   DR2457K6   DR3072K		Query only
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RATE:INDex	1 to 12 (physical layer subtype 0&1) 1 to 14 (physical layer subtype 2)		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RPC:MODE	HOLD   UP   DOWN   RANGE   EXTERNAL   PATtern		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RPC:RANGE	1 to 256		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RPC:ZONE<0..3>:BIT	0   1		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:RPC:ZONE<0..3>:COUNT	1 to 128		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:SCOUNT	-		Query only
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:STATe	ON   OFF		
[SOURce<[1]>]2>:]BB:EVDO:USER<1..4>:SUBType	S1   S2		Query only

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:DATA:PATTERN <bit pattern>**

Sets the data pattern for the data portion of the packets sent to the user. The most significant bit (MSB) of this value is the MSB of the packet and the word is repeated to fill all space within the packet. This parameter is 32 bits and in a hexadecimal format.

**Example:** BB:EVDO:USER2:DTA:PATT # H55aa55aa  
'sets the data pattern for user 2.'

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:DRCLock:LENGTH DL1 | DL4 | DL8 | DL16 | DL32**

Sets the number of DRC (Data Rate Control) Lock periods that the state of the DRC Lock for the selected user will be held constant.

**Note:**  
*Changes in the DRC Lock state are only considered at the interval defined by the parameter DRC Lock Length.*

A value of one allows updating of the DRC Lock bit at anytime.

**Example:** BB:EVDO:USER2:DRCL:LENG DL8  
'sets 8 DRCLock periods for holding the state of user 2 constant.'

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:DRCLock:OFFSet 0 to 15**

Sets the reverse link frame offset for the reverse link. The frame offset is used to properly position the DRC Lock bit within the MAC channel.

**Example:** BB:EVDO:USER2:DRCL:OFFS 5  
'sets the reverse link frame offset to 5.'

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:DRCLock:PERiod DP0 | DP4 | DP8 | DP16**

Sets the period (measured in slots) of time between successive transmissions of the DRC (Data Rate Control) Lock bit for the selected user.

**Note:**

*A value of zero will disable the DRC Lock subchannel and the MAC RPC channel of the selected user will not be punctured with the DRC Lock subchannel.*

**Example:** BB:EVDO:USER2:DRCL:PER DP8  
 'sets the DRC Lock period for user 2 to 8 slots.

*RST value	Resolution	SCPI
4	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:DRCLock:STATe ON | OFF**

Sets the state of the DRC (Data Rate Control) Lock bit for the selected user.

**Note:**

*Changes in the DRC Lock state are only considered at the interval defined by the parameter DRC Lock Length.*

**Example:** BB:EVDO:USER2:DRCL:STAT ON  
 'activates the DRC Lock bit for user 2.

*RST value	Resolution	SCPI
OFF	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:HARQ:MODE OFF | ACK | NAK**

Enables or disables the H-ARQ Channel.  
 The H-ARQ channel is used by the access network to transmit positive acknowledgement (ACK) or a negative acknowledgement (NAK) in response to a physical layer packet.

**Note:**

*This parameter is enabled for Physical Layer Subtype 2 only.*

- Parameter:**
- OFF** Disables transmission of the H-ARQ channel.
  - ACK** Enables transmission of H-ARQ. The channel will be transmitted with all bits set to ACK.
  - NAK** Enables transmission of H-ARQ. The channel will be transmitted with all bits set to NAK

**Example:** BB:EVDO:USER2:SUBT S2  
 'sets the physical layer subtype for user 2 to 2.  
 BB:EVDO:USER2:HARQ:MODE ACK  
 'enables ARQ channel. The channel will be transmit with all bits set to ACK.

*RST value	Resolution	SCPI
OFF	-	device-specific

**[SOURce<[1]2>:]BB:EVDO:USER<1..4>:IFACtor 1 to 4**

Controls the number of interleave slots used for the selected user on the forward link. Four interleave slots are defined in the 1xEV-DO system. By default, only 1 Interleave slot (Interleave Factor = 1) for an access terminal is configured and transmission to that access terminal every 4th slot is selected. For an interleave factor > 1, packets on multiple interleave slots will be sent, increasing the data throughput to the access terminal.

**Example:** BB:EVDO:USER2:IFAC 2  
'sets 2 interleaved slots for user 2 on the forward link.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURce<[1]2>:]BB:EVDO:USER<1..4>:MAC:INDEX 5 to 63 (physical layer subtype 0&1) and 6 to 63, 72 .. 127 (physical layer subtype 2)**

Sets the MAC Index used for the selected user. MAC Index should be different for the different users. However, in case that two users are using the same value for MAC Index, the lower priority user will be disabled, or be unable to enable. The values for the MAC Indexes for the 'OtherUsers' (see parameter "[\\_D2HLink\\_155152](#)") will be assigned from a pool of valid MAC Indexes, that exclude the MAC Indexes specified for each of the four configurable users.

**Example:** BB:EVDO:USER2:MAC:IND 6  
'sets the MAC index for user 2 to 16.

*RST value	Resolution	SCPI
Physical layer subtype 0&1: 5 for user 1 6 for user 2 7 for user 3 8 for user 4	-	device-specific
Physical layer subtype 2: 6 for user 1 7 for user 2 8 for user 3 9 for user 4	-	device-specific

**[SOURce<[1]2>:]BB:EVDO:USER<1..4>:MAC:LEVel -25 .. -7**

Sets the power within the MAC channel that is dedicated to the selected user.

**Example:** BB:EVDO:USER2:MAC:LEV -7.0  
'sets the power within the MAC channel to -7.0 dB.

*RST value	Resolution	SCPI
-7.0 dB	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:PACKet:COUNT 0 to 65536**

Sets the number of packets to send to the selected user.  
 The number of packets to be send depends on whether the parameter **Infinite** is enabled or disabled.  
 If **Infinite** is enabled, there is no limit to the number of packets sent to the user.  
 If **Infinite** is disabled and a value is specified while packets are being sent, the new count value will be used at the end of transmission of the current packet. If a value of zero is specified, the transmission to the user will be stopped at the end of the current packet.

**Example:** BB:EVDO:USER2:PACK:INF OFF  
 'disables sending of unlimited number of packets.  
 BB:EVDO:USER2:PACK:COUNT 10  
 'sets the number of packets to be send to 10.

*RST value	Resolution	SCPI
65536	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:PACKet:INFinite ON | OFF**

Enables or disables sending an unlimited number of packets to the selected user.

**Parameter:** **ON**  
 Enables sending of an unlimited number of packets to the user.  
**OFF**  
 Disables sending of an unlimited number of packets to the user. The number of packets to be sent can be specified.

**Example:** BB:EVDO:USER2:PACK:INF OFF  
 'disables sending of unlimited number of packets for user 2.  
 BB:EVDO:USER2:PACK:COUNT 10  
 'sets the number of packets to be send to user 2 to10.

*RST value	Resolution	SCPI
65536	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:PACKet:SOFFset 0 .. 255**

Sets the minimum number of slots between the end of one packet and the beginning of the next.  
 For single slot packets, a value of zero will cause the next packet to be sent in the immediate next slot (subject to scheduling).  
 For multiple slot packets, a value of zero will cause the next packet transmission to start three slots after the end of the previous packet. The three slot delay is identical to the interleaving delay between slots for multiple slot packets. The offset value is attached to the end of the preceding packet.

**Note:**  
*An offset value of zero with a rate change from a single slot packets to a multiple slot packets will cause the first slot of the multiple slot packet to be transmitted in the slot immediately following the single slot packet.*

**Example:** BB:EVDO:USER2:PACK:SOFF 10  
 'sets the packet start offset for user 2 to10.

*RST value	Resolution	SCPI
0	-	device-specific

[SOURce<[1]|2>:]BB:EVDO:USER<1..4>:PSIZe PS128 | PS256 | PS512 | PS1024 | PS 1536 | PS2048 | PS3072 | PS4096 | PS5120 | PS6144 | PS8192 | PS12288

Sets the packet size for the packets sent to the selected user.  
 For physical layer 0&1, the parameter **Packet Size** is read-only. The value is automatically set depending on the selection for the parameter **Rate Index**. (see Table "Rate Index for Physical Layer Subtype 0&1" in "Rate Index - 1xEV-DO")

For physical layer subtype 2, a combination of the parameter **Packet Size** and the parameter **Rate Index** sets the data rate and the slot count for the packets sent to the selected user. (see Table "Rate Index for Physical Layer Subtype 2" in "Rate Index - 1xEV-DO").

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Example:** BB:EVDO:ANET:SUBT S2  
               'sets the physical layer subtype to 2.  
 BB:EVDO:USER2:RATE:IND 4  
               'sets the rate index of user 2 to 4.  
 BB:EVDO:USER2:PSIZ PS256  
               'sets the packet size for user 2 to 256.  
 SOUR:BB:EVDO:USER2:RATE?  
               'queries the data rare for user 2.  
 Response:    76.8 kbps

*RST value	Resolution	SCPI
128	-	device-specific

[SOURce<[1]|2>:]BB:EVDO:USER<1..4>:RATE DR4K8 | DR9K6 | DR19K2 | DR38K4 | DR76K8 | DR153K6 | DR307K2 | DR614K4 | DR921K6 | DR1228K8 | DR1536K | DR1843K2 | DR2457K6 | DR3072K

For physical layer 0&1, the parameter **Rate Index** alone automatically set the packet size, data rate and the slot count for the packets sent to the selected user. Parameters Packet Size, Data Rate and Slot Count are read-only. (see Table "Rate Index for Physical Layer Subtype 0&1" in "Rate Index - 1xEV-DO").

Displays the data rate of the packets sent to the selected user.  
 This parameter is read-only. The value is set automatically, depending on the selected **Rate Index** and **Packet Size**. (see Table "Rate Index for Physical Layer Subtype 0&1" and Table "Rate Index for Physical Layer Subtype 2" in "Rate Index - 1xEV-DO").

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Example:** BB:EVDO:ANET:SUBT S2  
               'sets the physical layer subtype to 2.  
 BB:EVDO:USER2:RATE:IND 4  
               'sets the rate index of user 2 to 4.  
 BB:EVDO:USER2:PSIZ PS256  
               'sets the packet size for user 2 to 256.  
 SOUR:BB:EVDO:USER2:RATE?  
               'queries the data rare for user 2.  
 Response:    76.8 kbps

*RST value	Resolution	SCPI
128	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:USER<1..4>:RATE:INDEX** 1..12 (physical layer subtype 0&1) | 0 .. 14 (physical layer subtype 2)

For physical layer 0&1, the parameter **Rate Index** alone automatically set the packet size, data rate and the slot count for the packets sent to the selected user. Parameters Packet Size, Data Rate and Slot Count are read-only. (see Table "Rate Index for Physical Layer Subtype 0&1" in "[Rate Index - 1xEV-DO](#)").

For physical layer subtype 2 however, a combination of the parameters **Rate Index** and the parameter **Packet Size** sets the data rate and the slot count for the packets sent to the selected user. (see Table "Rate Index for Physical Layer Subtype 2" in "[Rate Index - 1xEV-DO](#)").

**Note:**

*Selected rate becomes effective at the beginning of the next packet transmitted to the selected user.*

**Example:**

```

BB:EVDO:ANET:SUBT S2
    'sets the physical layer subtype to 2.
BB:EVDO:USER2:RATE:IND 4
    'sets the rate index of user 2 to 4.
BB:EVDO:USER2:PSIZ PS256
    'sets the packet size for user 2 to 256.
SOUR:BB:EVDO:USER2:RATE?
    'queries the data rare for user 2.
Response:    76.8 kbps
    
```

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]>:]BB:EVDO:USER<1..4>:RPC:MODE** HOLD | UP | DOWN | RANGE | EXTERNAL | PATTERN

Sets the operation mode for the Reverse Power Control (RPC) Channel within the MAC channel for the selected user.

**Parameter:**

**HOLD**

An alternating series of Up and Down power control bits are transmitted. The intent is to hold the access terminal at a constant power level. This mode always starts with an Up bit, and ends with the following Down bit. This mode is two bits long.

**UP**

A continuous stream of Up (0) power control bits are transmitted. The intent is to force the access terminal to the highest transmit power level. This mode is a single bit long.

**DOWN**

A continuous stream of Down (1) power control bits are transmitted. The intent is to force the access terminal to the lowest transmit power level. This mode is a single bit long.

**RANGe**

A sequence of Up power control bits are sent followed by an equal number of Down power control bits. The intent is to force the access terminal to ramp its power from one extreme to another. The number of power control bits in each direction is specified by the **RPC Range Count** parameter. (see "[SOURCE-EVDO – RPC Range Count](#)"). Each time that the Range mode is specified, the sequence will be restarted. The Range mode starts with the first Up bit and ends with the last Down bit. The length of the mode is two times the RPC Range Count.

**EXTErnal**

The state of the RPC bit will be taken from the External RPC input. Multiple devices may use this mode, but only one input is provided. This mode is a single bit long.

**Note:**

*External mode is enabled in the realtime system only.*

**PATTErn**

A user-defined sequence of RPC bits is sent. The mode starts with the bit defined in the first (0) zone, and ends with the last bit of the last (3) zone. The length of the pattern is the sum of the Count values for each RPC Zone.

**Example:**

BB:EVDO:USER2:RPC:MODE UP  
 'a continuous stream of Up (0) are transmitted on the Reverse Power Control (RPC) Channel within the MAC channel for user 2.

*RST value	Resolution	SCPI
HOLD	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:RPC:RANGe 1 to 256**

Sets the number of Reverse Power Control (RPC) bits sent in each direction when the **RPC Mode** is set to Range. The specified value is used immediately.

**Note:**

*This parameter is displayed in RPC Mode "Range" only.*

**Example:**

BB:EVDO:USER2:RPC:MODE RANG  
 'sets the mode of the Reverse Power Control (RPC) Channel within the MAC channel for user 2 to range.  
 BB:EVDO:USER2:RPC:RANG:COUN 200  
 'sets the number of RPC bits to 200.

*RST value	Resolution	SCPI
1	-	device-specific



[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:RPC:ZONE<0..3>:BIT 0 |1

The Reverse Power Control (RPC) pattern is defined in form of table with four zones (zone 0 .. 3). For each zone, a bit and a cont can be defined.

This parameter defines the RPC bits sent within the specific zone of the RPC Pattern.

**Example:** BB:EVDO:USER2:RPC:MODE PATT  
 'sets the mode of the Reverse Power Control (RPC) Channel within the MAC channel for user 2 to pattern, i.e. a user-defined sequence will be transmitted.  
 BB:EVDO:USER2:RPC:ZONE1:BIT 1  
 'sets the bit for zone 1 to 1.

*RST value	Resolution	SCPI
0	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:RPC:ZONE<0..3>:COUNT 1 to 128

The Reverse Power Control (RPC) pattern is defined in form of table with four zones (zone 0 .. 3). For each zone, a bit and a count can be defined.

This parameter defines the number of RPC bits sent within the specific zone of the RPC Pattern.

**Example:** BB:EVDO:USER2:RPC:MODE PATT  
 'sets the mode of the Reverse Power Control (RPC) Channel within the MAC channel for user 2 to pattern, i.e. a user-defined sequence will be transmitted.  
 BB:EVDO:USER2:RPC:ZONE1:COUNT 10  
 'sets the number of RPC bits for zone 1 to 10.

*RST value	Resolution	SCPI
0	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:SCOUNT ?

Displays the slot count of the packets sent to the selected user.  
 This parameter is read-only. The value is set automatically, depending on the selected **Rate Index** and **Packet Size**. (see Table "Rate Index for Physical Layer Subtype 0&1" and Table "Rate Index for Physical Layer Subtype 2" in "[Rate Index - 1xEV-DO](#)")

**Example:** BB:EVDO:ANET:SUBT S2  
 'sets the physical layer subtype to 2.  
 BB:EVDO:USER2:RATE:IND 4  
 'sets the rate index of user 2 to 4.  
 BB:EVDO:USER2:PSIZ PS256  
 'sets the packet size for user 2 to 256.  
 SOUR:BB:EVDO:USER2:SCO?  
 'queries the number of slots for user 2.  
 Response: 2

*RST value	Resolution	SCPI
16	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:STATe ON | OFF**

Enables or disables the selected user.  
 If the user is enabled, the proper MAC Index will be placed within the MAC channel and packets may be sent to the user.  
 If disabled, the MAC Index will not be present within the MAC channel and packets may not be sent to the user.

**Note:**  
*Disabling the state of a user during a transfer aborts all transfers to the user.*

**Example:** BB:EVDO:USER2:STAT ON  
 ' activates user 2.

*RST value	Resolution	SCPI
ON (user 1) OFF (user 2..4)	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:USER<1..4>:SUBType?**

Displays the physical layer subtype selected with the command BB:EVDO:ANET:SUBT.

**Example:** BB:EVDO:USER2:SUBT?  
 ' queries the physical layer subtype of user 2.

*RST value	Resolution	SCPI
2	-	device-specific

## SOURce:BB:EVDO - Configure Access Terminal 1 to 4

Command	Parameter	Default Unit	Comments
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACKChannel:GAIN	-80 to 10	dB	
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACKChannel:GATing	<bit pattern>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACKChannel:MODE	BPSK   OOK		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACKChannel:STATe	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACKChannel:VALues	<bit pattern>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACyCle:DUratiOn	1 to 255		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:ACyCle:OFFSet	0 to 12		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:APCHannel:GAIN	-80 to 10	dB	
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:APCHannel:PAYLoad:MINimum	PS128   PS256   PS512   PS768   PS1024   PS1536   PS2048   PS3072   PS4096   PS5120   PS6144   PS8192   PS12288		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:APCHannel:STATe	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:CLEngth	1 to 15	frames	
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:DATA	ZERO   ONE   PATtern   PN9   PN11   PN15   PN16   PN20   PN21   PN23   DLISt		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:DATA:DSElection	<file name>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:DATA:PATtern	<bit pattern>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:DRATe	DR9K6   DR19K2   DR38K4		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:FCS[:STATe]	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:GAIN	-80 to 10	dB	
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:CCODing	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:COUNT	0 to 65536		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DATA	ZERO   ONE   PATtern   PN9   PN11   PN15   PN16   PN20   PN21   PN23   DLISt		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DATA:DSELection	<file name>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DATA:PATTen	<bit pattern>		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:FCS[:STATe]	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:GAIN	-80 to 10	dB	
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:INFinite	ON   OFF		
[SOURce<[1]>2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:MODulation			Query only

Command	Parameter	Default Unit	Comments
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:PSIZE	PS128   PS256   PS512   PS768   PS1024   PS1536   PS2048   PS3072   PS4096   PS5120   PS6144   PS8192   PS12288		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:SUBPackets[:COUNT]	1 to 4		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DCHannel:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DPSPreading	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:COVer	0 to 7		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:GAIN	-80 to 10	dB	
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:GATing[:STATe]	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:LENGth	DL1   DL2   DL4   DL8		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DRCChannel:VALues	<bit pattern>		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DSCChannel:GAIN	-80 to 10	dB	
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DSCChannel:LENGth	8 to 256 step 8		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DSCChannel:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:DSCChannel:VALues	<bit pattern>		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:IMASK	<hex pattern>		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:MODE	ACCESS   TRAFic		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:PCHannel:GAIN	-80 .. 10	dB	
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:PCHannel:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:PLENght	1 to 7	frames	
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:QMASK	<hex pattern>		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:PRiChannel:GAIN	-80 to 10	dB	
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:PRiChannel:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:STATe	ON   OFF		
[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:SUBType	S1   S2		

**[SOURce<[1]2>:]BB:EVDO:TERMinal<1..4>:ACKChannel:GAIN -80 to 10**

Sets the gain of the ACK channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:**

BB:EVDO:TERM2:ACKC:GAIN -10  
'sets the relative gain of ACK channel to -10 dB

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]2>:]BB:EVDO:TERMinal<1..4>:ACKChannel:GATing <bit pattern>**

Sets the active and inactive slots of the ACK channel. This parameter is in binary format and has a maximal length of 16 bits.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. A 0 gates the ACK channel off for the corresponding slot, a 1 activates the channel.

**Example:** BB:EVDO:TERM2:ACKC:GAT #B11001100,8  
 'sets slots 3, 4, 7 and 8 of ACK channel as inactive.

*RST value	Resolution	SCPI
0001	-	device-specific

**[SOURCE<[1]2>:]BB:EVDO:TERMinal<1..4>:ACKChannel:MODE BPSK | OOK**

Specifies the modulation mode of the ACK channel.  
 With BPSK modulation, a 0 (ACK) is mapped to +1 and a 1 (NAK) to -1.  
 With OOK modulation, a 0 (ACK) is mapped to ON and a 1 (NAK) to OFF.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Parameter: BPSK**  
 Sets the modulation to BPSK (Binary Phase Shift Keying).  
**OOK**  
 Sets the modulation to OOK (On-Off Keying).

**Note:**

*This value is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'sets the mode of terminal 2 to traffic.  
 BB:EVDO:TERM2:SUBT S2  
 'sets the physical layer subtype of terminal 2 to 2.  
 BB:EVDO:TERM2:ACKC:MODE OOK  
 'selects OOK modulation for ACK channel of terminal 2.

*RST value	Resolution	SCPI
BPSK	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:ACKCHANNEL:STATE ON | OFF**

Enables or disables the ACK channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:ACKC:STAT OFF  
 'deactivates the ACK channel for terminal 2.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:ACKCHANNEL:VALUES <data pattern>**

Specifies the data pattern transmitted on the ACK Channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. A 0 specifies an ACK, a 1 specifies a NAK. The pattern is only read for slots that are gated on. This parameter is in binary format and has a maximal length of 16 bits.

**Example:** BB:EVDO:TERM2:ACKC:VAL #B011,3  
 'sets the data pattern transmitted on the ACK channel for terminal 2.

*RST value	Resolution	SCPI
01	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:ACCYCLE:DURATION 1 to 255**

Sets the access cycle duration in slots. Access probes are repeated with a period of access cycle duration slots.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.  
 BB:EVDO:TERM2:ACYC:DUR 20  
 'sets the duration of the access cycle for terminal 2 to 20 slots.

*RST value	Resolution	SCPI
16	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:ACYCLe:OFFSet 0 to 12**

The Access Channel transmission starts with this number of slots relative to the beginning of each access cycle duration.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.  
 BB:EVDO:TERM2:ACYC:OFFS 10  
 'sets the offset of the Access Channel to 10.

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:APCHannel:GAIN -80 to 10**

Sets the gain of the auxiliary pilot channel relative to the data channel power.

**Note:**

*All other channel gains are specified relative to the pilot power, but the auxiliary pilot gain is specified relative to the data channel power.*

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:APCH:GAIN -10  
 'sets the relative gain of auxiliary pilot channel to -10 dB

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:APCHannel:PAYLoad:MINimum PS128 | PS256 | PS512 | PS768 | PS1024 | PS 1536 | PS2048 | PS3072 | PS4096 | PS6144 | PS8192 | PS12288**

Sets the minimum payload size in bits of the Data Channel that activates the transmission of the Auxiliary Pilot Channel.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:APCH:PAYL:MIN PS256  
 'sets the minimum payload of the auxiliary pilot channel to 256 bits.

*RST value	Resolution	SCPI
128	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:APCHannel:STATe ON | OFF**

Enables or disables the auxiliary pilot channel.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:APCH:STAT OFF  
 'deactivates the auxiliary pilot channel for terminal 2.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:CLENght 1 to 15**

Sets the number of frames (16 slots each) to be transmitted after the preamble. Each frame contains one data packet.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.  
 BB:EVDO:TERM2:DCH:CLEN 10  
 'for terminal 2, 10 frames will be transmitted after the preamble.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:DATA ZERO | ONE | PATTErn | PN9 | PN11 | PN15 | PN16 | PN20 | PN21 | PN23 | DLISt**

Selects the data source.

- Parameter:** **ZERO, ONE**  
 0 data or 1 data is internally generated.
- PN9, PN11, PN15, PN16, PN20, PN21, PN23**  
 PRBS data in accordance with the IUT-T with period lengths between 29-1 and 223-1 are internally generated.
- PATTErn**  
 A user-definable bit pattern with a maximum length of 64 bits is internally generated.  
 The bit pattern is defined in the Pattern input box.
- DLISt**  
 Data lists will be used. Data lists can be generated internally in the data editor or externally.  
 Data lists are selected in the Select Data List field.

**Example:** BB:EVDO:TERM2:DCH:DATA PATT  
 'sets the data source of terminal 2 to pattern.  
 BB:EVDO:TERM2:DCH:DATA:PATT #H3F,8  
 'sets the pattern for the data source of terminal 2.



*RST value	Resolution	SCPI
PN9	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DCHANNEL:DATA:DSELECTION <file name>**

Selects the data list for the data source.

**Example:** BB:EVDO:TERM2:DCH:DATA DLIS  
 'sets the data source of terminal 2 to data list.  
 MMEM:CDIR 'D:\datalists'  
 'selects the directory for the data lists.  
 BB:EVDO:TERM2:DCH:DATA:DSEL 'datalist.dm\_iqd'  
 'selects datalist.dm\_iqd file as data source. This file must be in the directory D:\datalists and have a file extension \*.dm\_iqd.

*RST value	Resolution	SCPI
-	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DCHANNEL:DATA:PATTERN <bit pattern>**

Selects the bit pattern for the data source.

**Example:** BB:EVDO:TERM2:DCH:DATA PATT  
 'sets the data source of terminal 2 to data list.  
 BB:EVDO:TERM2:DCH:DATA:PATT #H3F,8  
 'defines the bit pattern.

*RST value	Resolution	SCPI
-	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DCHANNEL:DRATE DR9K6 | DR19K2 | DR38K4**

Selects the data rate for the Data Channel.

**Note:**  
 This parameter is only enabled for an access terminal working in access mode.

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.  
 BB:EVDO:TERM2:DCH:DRAT DR19K2  
 'sets the data rate of the data channel for terminal 2 to 19.2 kbps.

*RST value	Resolution	SCPI
9.6 kbps	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:FCS[:STATe] ON | OFF**

Enables or disables appending a standard Frame Check Sequence (FCS) to the MAC layer packet.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.

BB:EVDO:TERM2:DCH:FCS:STAT OFF  
 'disables appending of FCS to the MAC layer for terminal 2.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:GAIN -80 to 10**

Sets the gain in dB of the Data Channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.

BB:EVDO:TERM2:DCH:GAIN -10  
 'sets the relative gain of data channel to -10 dB

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:CCODing ON | OFF**

Activates or deactivates channel coding, including scrambling, turbo encoding and channel interleaving.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.  
 Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'enables terminal 2 to work in traffic mode.

BB:EVDO:TERM2:SUBT S2  
 'sets physical layer subtype 2 for terminal 2.

BB:EVDO:TERM2:DCH:PACK3:CCOD OFF  
 'disables channel coding for packet 3.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:COUNT** 0 to 65536

Sets the number of packets to be sent.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The number of packets to be send depends on whether the parameter **Infinite Packets** is enabled or disabled. If **Infinite Packets** is enabled, there is no limit to the number of packets sent.

If **Infinite Packets** is disabled, the number of packets can be specified. In this case the data channel will be switched off after the specified number of packets have been sent.

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:**

- BB:EVDO:TERM2:MODE TRAF  
'enables terminal 2 to work in traffic mode.
- BB:EVDO:TERM2:SUBT S2  
'sets physical layer subtype 2 for terminal 2.
- BB:EVDO:TERM2:DCH:PACK3:INF OFF  
'disables sending of unlimited umber of packets.
- BB:EVDO:TERM2:DCH:PACK3:COUN 2000  
'sets number of packets to be send to 2000.

*RST value	Resolution	SCPI
65536	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:DATA** ZERO | ONE | PATtern | PN9 | PN11 | PN15 | PN16 | PN20 | PN21 | PN23 | DLISt

Selects the data source.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.  
Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Parameter:**

- ZERO, ONE**  
0 data or 1 data is internally generated.
- PN9, PN11, PN15, PN16, PN20, PN21, PN23**  
PRBS data in accordance with the IUT-T with period lengths between 29-1 and 223-1 are internally generated.
- PATtern**  
A user-definable bit pattern with a maximum length of 64 bits is internally generated.  
The bit pattern is defined in the Pattern input box.
- DLISt**  
Data lists will be used. Data lists can be generated internally in the data editor or externally.  
Data lists are selected in the Select Data List field.

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'enables terminal 2 to work in traffic mode.  
 BB:EVDO:TERM2:SUBT S2  
 'sets physical layer subtype 2 for terminal 2.  
 BB:EVDO:TERM2:DCH:PACK3:DATA PATT  
 'sets the data source of terminal 2 to pattern.  
 BB:EVDO:TERM2:DCH:PACK3:DATA:PATT #H3F,8  
 'sets the pattern for the data source of terminal 2.

*RST value	Resolution	SCPI
PN9	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DATA:DSELection <file name>**

Selects the data list for the data source.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode. Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'enables terminal 2 to work in traffic mode.  
 BB:EVDO:TERM2:DCH:PACK:DATA DLIS  
 'sets the data source of terminal 2, packet 1 to data list.  
 MMEM:CDIR 'D:\datalists  
 'selects the directory for the data lists.  
 BB:EVDO:TERM2:DCH:PACK:DATA:DSEL 'datalist.dm\_iqd'  
 'selects datalist.dm\_iqd file as data source. This file must be in the directory D:\datalists and have a file extension \*.dm\_iqd.

*RST value	Resolution	SCPI
-	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DATA:PATTern <bit pattern>**

Selects the bit pattern for the data source.

**Note:**

This parameter is only enabled for an access terminal working in traffic mode. Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.

**Example:** BB:EVDO:TERM2:DCH:PACK:DATA PATT  
 'sets the data source of terminal 2 to data list.  
 BB:EVDO:TERM2:DCH:PACK:DATA:PATT #H3F,8  
 'defines the bit pattern.

*RST value	Resolution	SCPI
-	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:DRATe?

Displays the data rate in kbps of the selected packet.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode. Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'enables terminal 2 to work in traffic mode.  
 BB:EVDO:TERM2:DCH:PACK2:DRAT?  
 'queries the data rate of the packet number 2 for terminal 2.  
 Response: '6.4'  
 'the data rate of packet 2 is 6.4 kbps.

*RST value	Resolution	SCPI
-	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>FCS[:STATe] ON | OFF

Enables or disables appending a standard Frame Check Sequence (FCS) and tail to the MAC layer packet.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode. Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE ACC  
 'enables terminal 2 to work in access mode.  
 BB:EVDO:TERM2:DCH:PACK:FCS:STAT OFF  
 'disables appending of FCS to the MAC layer for terminal 2, packet 1.

*RST value	Resolution	SCPI
ON	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:GAIN -80 to 10

Sets the gain in dB of the Data Channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode. Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
 'enables terminal 2 to work in traffic mode.  
 BB:EVDO:TERM2:SUBT S2  
 'sets the physical layer subtype of terminal 2 to 2.  
 BB:EVDO:TERM2:DCH:PACK3:GAIN -10  
 'sets the relative gain of packet 3 to -10 dB

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:INFinite ON | OFF**

Enables or disables sending an unlimited number of packets.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The parameter **Number of Packets to be Send** depends on whether the parameter **Infinite Packets** is enabled or disabled. If **Infinite Packets** is enabled, there is no limit to the number of packets sent.

If **Infinite Packets** is disabled, the number of packets can be specified.

**Note:**

*Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

- Example:**
- BB:EVDO:TERM2:MODE TRAF  
'enables terminal 2 to work in traffic mode.
  - BB:EVDO:TERM2:SUBT S2  
'sets physical layer subtype 2 for terminal 2.
  - BB:EVDO:TERM2:DCH:PACK3:INF OFF  
'disables sending of unlimited umber of packets.
  - BB:EVDO:TERM2:DCH:PACK3:COUN 2000  
'sets number of packets to be send to 2000.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURce<[1]|2>:]BB:EVDO:TERMinal<1..4>:DCHannel:PACKet<1..3>:MODulation ?**

Displays the modulation type per packet.

**Note:**

*This parameter is only enabled for physical layer subtype 2 and for an access terminal working in traffic mode.*

- Parameter:**
- B4** The modulation type is set to BPSK modulation with 4-ary Walsh cover.
  - Q4** The modulation type is set to QPSK modulation with 4-ary Walsh cover.
  - Q2** The modulation type is set to QPSK modulation with 2-ary Walsh cover.
  - Q4Q2** Sum of Q4 and Q2 modulated symbols.
  - E4E2** Sum of E4 (8-PSK modulated with 4-ary Walsh cover) and E2 (8-PSK modulated with 2-ary Walsh cover) modulated symbols.

- Example:**
- BB:EVDO:TERM2:DCH:PACK3:MOD?  
'queries the modulation for packet 3 of terminal 2.

*RST value	Resolution	SCPI
B4	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:PSIZe PS128 | PS256 | PS512 | PS768 | PS1024 | PS 1536 | PS2048 | PS3072 | PS4096 | PS6144 | PS8192 | PS12288

Sets the Payload Size in bits for the selected packet.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.  
Configuration of Packet 2 and Packet 3 transmitted on the second and the third subframe, is only enabled for physical layer subtype 2.*

**Example:** BB:EVDO:TERM2:MODE TRAF  
'enables terminal 2 to work in traffic mode.  
BB:EVDO:TERM2:SUBT S2  
'sets the physical layer subtype of terminal 2 to 2.  
BB:EVDO:TERM2:DCH:PACK3:PSIZ PS512  
'sets the payload size fro packet 3 to 512.

*RST value	Resolution	SCPI
128	-	device-specific

[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DCHannel:PACKet<1..3>:STATe ON |OFF

Enables or disables the state of the packet(s).

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

The number of configurable packets per Data Channel depends on the selected physical layer. There are three configurable packets (Packet 1... 3) for physical layer subtype 2. When more then one packet is active, packet 1 is sent on the first subframe (first 4 slots), packets 2 and 3 are sent respectively on the second and the third subframe.

When only one packet is active and number of subpackets is set to 1, no interleaving will be performed between the packets. In this case, the data channel is active continuously.

When only one packet is active but the number of subpackets is larger than one, subframe interleaving has to be performed. In this case 2 subframes will be left empty inbetween every two subpackets.

Only one configurable packet is available for physical layer subtype 0&1, the dat channel is continuously active for the number of packets to send.

**Example:** BB:EVDO:TERM2:MODE TRAF  
'enables terminal 2 to work in traffic mode.  
BB:EVDO:TERM2:SUBT S2  
'sets the physical layer subtype of terminal 2 to 2.  
BB:EVDO:TERM2:DCH:PACK2:STAT OFF  
'deactivates packet 2 of terminal 2.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DCHANNEL:PACKET<1..3>:SUBPACKETS[:COUNT] 1 to 4**

Sets the number of sub-packets to be sent.

**Note:**

*This parameter is only enabled for physical layer subtype 2 and for an access terminal working in traffic mode.*

**Example:**

```
BB:EVDO:TERM2:MODE TRAF
    'enables terminal 2 to work in traffic mode.

BB:EVDO:TERM2:SUBT S2
    'sets physical layer subtype 2 for terminal 2.

BB:EVDO:TERM2:DCH:PACK3:SUBP:COUN 4
    'sets the number of sub-packets to 4, i.e. subpacket 0, 1, 2 and 3 of a packet
    will be sent in a subframe each (with 2 subframes interleaving between)
    before the next packet is started.
    This is to simulate a situation where 3 times NAK has been received from the
    basestation with an ACK after the 4th subpacket
```

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DCHANNEL:STATE ON | OFF**

Enables or disables the state of the Data Channel.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:**

```
BB:EVDO:TERM2:MODE ACC
    'enables terminal 2 to work in access mode.

BB:EVDO:TERM2:DCH:STAT OFF
    'disables data channel for terminal 2.
```

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DQSPREADING ON | OFF**

Disables the quadrature spreading (complex multiply) with PN sequences and long code.

**Example:**

```
BB:EVDO:TERM2:DQSP ON
    'enables using quadrature spreading with PN sequence and long code.
```

*RST value	Resolution	SCPI
OFF	-	device-specific



**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DRCCChannel:COVER 0 to 7**

Selects the Data Rate Control (DRC) Channel walsh cover.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:COV 1  
'sets the DRC cover to 1.

*RST value	Resolution	SCPI
7	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DRCCChannel:GAIN -80 ... 10**

Sets the gain of the Data Rate Control (DRC) channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:GAIN 10  
'sets the relative gain for DRC to 10 dB.

*RST value	Resolution	SCPI
0 dB	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:DRCCChannel:GATING[:STATE] -ON | OFF**

Activates or deactivates the Data Rate Control (DRC) Channel gating.

If gating is active, each value of the DRC channel is transmitted for one slot followed by DRCLength-1 empty slots.

With deactivated gating, each DRC value is repeated for DRC length slots.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:GAT:STAT OFF  
'deactivates DRC gating.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DRCCchannel:LENGth** DL1 | DL2 | RL4 | DL8

Specifies the transmission duration of the Data Rate Control (DRC) channel in slots.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:LENG DL2  
'sets the transmission duration of DRC to 2 slots.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1..4>:DRCCchannel:STATe** -ON | OFF

Enables or disables the state of the Data Rate Control (DRC) channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:STAT OFF  
'deactivates DRC channel.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1 to 4>:DRCCchannel:VALues** <bit pattern>

Specifies the pattern transmitted on the Data Rate Control (DRC) Channel. The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. Each specified value is used for DRC length slots.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DRCC:VAL #H7,4  
'sets transmitted pattern on DRC to #H7,4.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMIal<1 to 4>:DRCCchannel:VALues** <bit pattern>

Sets the gain of the Data Source Control (DSC) channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DSCC:GAIN 10  
'sets the relative gain for DSC to 10 dB.

*RST value	Resolution	SCPI
0 dB	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:DSCChannel:LENGTH** 8 to 256, step 8

Specifies the transmission duration of the Data Source Control (DSC) channel in slots.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DSCC:LENG 16  
'sets the transmission duration of DSC to 16 slots.

*RST value	Resolution	SCPI
8	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:DSCChannel:STATE** -ON | OFF

Enables or disables the state of the Data Source Control (DSC) channel.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DSCC:STAT OFF  
'deactivates DSC channel.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:DSCChannel:VALUES** <bit pattern>

Specifies the pattern transmitted on the Data Source Control (DSC) Channel. The sequence starts at frame 0 and slot 0 and is repeated with the length of the pattern. Each specified value is transmitted for DSC length slots.

**Note:**

*This parameter is only enabled for Physical Layer subtype 2 and for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:DSCC:VAL #H147,12  
'sets transmitted pattern on DSC to #H147,12.

*RST value	Resolution	SCPI
0	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:IMASK <hex pattern>**

Sets the long code mask of the I channel.

**Example:** BB:EVDO:TERM2:IMASK #H2FFFFFFFFFFFF,42  
 'sets the long code mask for I channel to #H2FFFFFFFFFFFF,42.

*RST value	Resolution	SCPI
0000 0000 000	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:MODE ACCESS | TRAFFIC**

Sets the mode (Traffic or Access) of the selected access terminal.

**Example:** BB:EVDO:TERM2:MODE ACC  
 'sets the mode of terminal 2 to access.

*RST value	Resolution	SCPI
TRAFFIC	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:PCHANNEL:GAIN -80 to 10**

Sets the gain of the pilot channel.  
 Gains of other channels are relative to the Pilot Channel power.  
 This setting is used to distinguish the power between access terminals, when more than one access terminal is active.

**Example:** BB:EVDO:TERM2:PCH:GAIN 10  
 'sets the gain of pilot channel to 10 dB.

*RST value	Resolution	SCPI
0 dB	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:PCHANNEL:STATE?**

Displays the state of the pilot channel.

**Note:**  
*The pilot channel is always switched on.*

**Example:** BB:EVDO:TERM2:PCH:STAT?  
 'queries the state of the pilot channel.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:PLENGTH 1 to 7**

Specifies the length of the preamble in frames (16 slots each) of the access probe.

**Note:**

*This parameter is only enabled for an access terminal working in access mode.*

**Example:** BB:EVDO:TERM2:PLEN 7  
'sets the preamble length to 7 frames.

*RST value	Resolution	SCPI
1	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:QMASK <hex pattern>**

Sets the long code mask of the Q channel.

**Example:** BB:EVDO:TERM2:IMAS #H3FFFFFFFFFFFF,42  
'sets the long code mask for I channel to #H3FFFFFFFFFFFF,42.

*RST value	Resolution	SCPI
0000 0000 000	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1..4>:RRICHANNEL:GAIN -80 to 10**

Sets the gain of the Reverse Rate Indicator (RRI) channel relative to the pilot channel power.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:RRIC:GAIN 10  
'sets the gain of pilot channel to 10 dB.

*RST value	Resolution	SCPI
0 dB	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMINAL<1 to 4>:RRICHANNEL:STATE -ON | OFF**

Enables or disables the state of the Reverse Rate Indicator (RRI) channel.

**Note:**

*This parameter is only enabled for an access terminal working in traffic mode.*

**Example:** BB:EVDO:TERM2:RRIC:STAT OFF  
'disables the RRI channel.

*RST value	Resolution	SCPI
ON	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMinal<1..4>:STATe -ON | OFF**

Enables or disables the selected access terminal.

**Example:** BB:EVDO:TERM2:STAT ON  
'activates access terminal 2.'

*RST value	Resolution	SCPI
ON (access terminal 1) OFF (access terminal 2..4)	-	device-specific

**[SOURCE<[1]|2>:]BB:EVDO:TERMinal<1..4>:SUBType S1 | S2**

Selects the physical layer subtype for the selected access terminal.

**Example:** BB:EVDO:TERM2:SUBT S2  
'sets the physical layer subtype 2.'

*RST value	Resolution	SCPI
2	-	device-specific

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