– *MeasObjectNR*

The IE *MeasObjectNR* specifies information applicable for SS/PBCH block(s) intra/inter-frequency measurements or CSI-RS intra/inter-frequency measurements.

***MeasObjectNR* information element**

```
-- ASN1START
-- TAG-MEAS-OBJECT-NR-START

MeasObjectNR ::=                    SEQUENCE {
    ssbFrequency                        ARFCN-ValueNR                                                   OPTIONAL,   -- Cond SSBorAssociatedSSB
    ssbSubcarrierSpacing                    SubcarrierSpacing                                           OPTIONAL,   -- Cond SSBorAssociatedSSB
    smtc1                               SSB-MTC                                                         OPTIONAL,   -- Cond SSBorAssociatedSSB
    smtc2                               SSB-MTC2                                                        OPTIONAL,   -- Cond IntraFreqConnected

    refFreqCSI-RS                       ARFCN-ValueNR                                                       OPTIONAL,
    referenceSignalConfig               ReferenceSignalConfig,

    absThreshSS-BlocksConsolidation     ThresholdNR                                                         OPTIONAL,   -- Need R
    absThreshCSI-RS-Consolidation       ThresholdNR                                                         OPTIONAL,   -- Need R

    nrofSS-BlocksToAverage              INTEGER (2..maxNrofSS-BlocksToAverage)                              OPTIONAL,   -- Need R
    nrofCSI-RS-ResourcesToAverage       INTEGER (2..maxNrofCSI-RS-ResourcesToAverage)                       OPTIONAL,   -- Need R

    quantityConfigIndex                 INTEGER (1..maxNrofQuantityConfig),

    offsetMO                            Q-OffsetRangeList,

    cellsToRemoveList                   PCI-List                                                            OPTIONAL,   -- Need N
    cellsToAddModList                   CellsToAddModList                                                   OPTIONAL,   -- Need N

    blackCellsToRemoveList              PCI-RangeIndexList                                                  OPTIONAL,   -- Need N
    blackCellsToAddModList              SEQUENCE (SIZE (1..maxNrofPCI-Ranges)) OF PCI-RangeElement      OPTIONAL,   -- Need N

    whiteCellsToRemoveList              PCI-RangeIndexList                                                  OPTIONAL,   -- Need N
    whiteCellsToAddModList              SEQUENCE (SIZE (1..maxNrofPCI-Ranges)) OF PCI-RangeElement      OPTIONAL,   -- Need N
    ...
}

ReferenceSignalConfig::=            SEQUENCE {
    ssb-ConfigMobility                  SSB-ConfigMobility                                              OPTIONAL,   -- Need M
    csi-rs-ResourceConfigMobility       SetupRelease { CSI-RS-ResourceConfigMobility }                  OPTIONAL    -- Need M
}

SSB-ConfigMobility ::=              SEQUENCE {
    ssb-ToMeasure                       SetupRelease { SSB-ToMeasure }                                  OPTIONAL,   -- Need M
    useServingCellTimingForSync         BOOLEAN,
    ss-RSSI-Measurement                     SS-RSSI-Measurement                                     OPTIONAL,   -- Need M
    ...
}


Q-OffsetRangeList ::=               SEQUENCE {
    rsrpOffsetSSB                       Q-OffsetRange               DEFAULT dB0,
    rsrqOffsetSSB                       Q-OffsetRange               DEFAULT dB0,
    sinrOffsetSSB                       Q-OffsetRange               DEFAULT dB0,
    rsrpOffsetCSI-RS                    Q-OffsetRange               DEFAULT dB0,
    rsrqOffsetCSI-RS                    Q-OffsetRange               DEFAULT dB0,
    sinrOffsetCSI-RS                    Q-OffsetRange               DEFAULT dB0
}

SSB-ToMeasure ::=                   CHOICE {
    shortBitmap                         BIT STRING (SIZE (4)),
    mediumBitmap                        BIT STRING (SIZE (8)),
    longBitmap                          BIT STRING (SIZE (64))
}

ThresholdNR ::=                     SEQUENCE{
    thresholdRSRP                       RSRP-Range                  OPTIONAL,
    thresholdRSRQ                       RSRQ-Range                  OPTIONAL,
    thresholdSINR                       SINR-Range                  OPTIONAL
}

CellsToAddModList ::=               SEQUENCE (SIZE (1..maxNrofCellMeas)) OF CellsToAddMod

CellsToAddMod ::=                   SEQUENCE {
    physCellId                          PhysCellId,

    cellIndividualOffset                Q-OffsetRangeList
}



-- TAG-MEAS-OBJECT-NR-STOP
-- ASN1STOP
```

MeasObjectNR field descriptions
absThreshCSI-RS-Consolidation Absolute threshold for the consolidation of measurement results per CSI-RS resource(s) from L1 filter(s). The values above the threshold are used as input to the derivation of cell measurement results as described in 5.5.3.3 and the L3 filter(s) per CSI-RS resource as described in 5.5.3.2.
absThreshSS-BlocksConsolidation Absolute threshold for the consolidation of measurement results per SS/PBCH block(s) from L1 filter(s). The values above the threshold are used as input to the derivation of cell measurement results as described in 5.5.3.3and the L3 filter(s) per SS/PBCH block index as described in 5.5.3.2.
blackCellsToAddModList List of cells to add/modify in the black list of cells.
blackCellsToRemoveList List of cells to remove from the black list of cells.
cellsToAddModList List of cells to add/modify in the cell list.
cellsToRemoveList List of cells to remove from the cell list.
nrofCSInrofCSI-RS-ResourcesToAverage Indicates the maximum number of measurement results per beam based on CSI-RS resources to be averaged. The same value applies for each detected cell associated with this MeasObjectNR.
nrofSS-BlocksToAverage Indicates the maximum number of measurement results per beam based on SS/PBCH blocks to be averaged. The same value applies for each detected cell associated with this MeasObject.
offsetMO Offset values applicable to all measured cells with reference signal(s) indicated in this *MeasObjectNR*.
quantityConfigIndex Indicates the n-*th* element of *quantityConfigNR-List* provided in *MeasConfig*.
referenceSignalConfig RS configuration (e.g. SMTC window, CSI-RS resource, etc.)
refFreqCSI-RS Point A which is used for maping of CSI-RS to physical resources according to TS 38.211 section 7.4.1.5.3.
smtc1 Primary measurement timing configuration. Applicable for intra- and inter-frequency measurements.
smtc2 Secondary measurement timing confguration for SS corresponding to this MeasObjectNR with PCI listed in pci-List. For these SS, the periodicity is indicated by periodicity in smtc2 and the timing offset is equal to the offset indicated in periodicityAndOffset modulo periodicity. periodicity in smtc2 can only be set to a value stricty shorter than the periodicity indicated by periodicityAndOffset in smtc1 (e.g. if periodicityAndOffset indicates sf10, periodicity can only be set of sf5, if periodicityAndOffset indicates sf5, smtc2 cannot be configured).
ssbFrequency Indicates the frequency of the SS associated to this MeasObjectNR.
ssbSubcarrierSpacing Subcarrier spacing of SSB. Only the values 15 or 30 (<6GHz), 120 kHz or 240 kHz (>6GHz) are applicable.
whiteCellsToAddModList List of cells to add/modify in the white list of cells.
whiteCellsToRemoveList List of cells to remove from the white list of cells.

– *MeasResults*

The IE *MeasResults* covers measured results for intra-frequency, inter-frequency, and inter-RAT mobility.

***MeasResults* information element**

```
-- ASN1START
-- TAG-MEAS-RESULTS-START

MeasResults ::=                         SEQUENCE {
    measId                                  MeasId,
    measResultServingMOList             MeasResultServMOList,
    measResultNeighCells                    CHOICE {
        measResultListNR                        MeasResultListNR,
        ...
    }                                                                                   OPTIONAL,
    ...
}
```

```
MeasResultServMOList ::=                SEQUENCE (SIZE (1..maxNrofServingCells)) OF MeasResultServMO

MeasResultServMO ::=                    SEQUENCE {
    servCellId                              ServCellIndex,
    measResultServingCell                   MeasResultNR,
    measResultBestNeighCell                 MeasResultNR                            OPTIONAL,
    ...
}

MeasResultListNR ::=                    SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultNR

MeasResultNR ::=                        SEQUENCE {
    physCellId                              PhysCellId                                  OPTIONAL,
    --FFS: Details of cgi info
    measResult                              SEQUENCE {
        cellResults                             SEQUENCE{
            resultsSSB-Cell                     MeasQuantityResults                 OPTIONAL,
            resultsCSI-RS-Cell                  MeasQuantityResults                 OPTIONAL
        },
        rsIndexResults                      SEQUENCE{
            resultsSSB-Indexes                  ResultsPerSSB-IndexList             OPTIONAL,
            resultsCSI-RS-Indexes               ResultsPerCSI-RS-IndexList          OPTIONAL
        }                                                                           OPTIONAL
    },
    ...
}


MeasQuantityResults ::=             SEQUENCE {
    rsrp                                RSRP-Range                          OPTIONAL,
    rsrq                                RSRQ-Range                          OPTIONAL,
    sinr                                SINR-Range                          OPTIONAL
}

ResultsPerSSB-IndexList::=          SEQUENCE (SIZE (1..maxNrofSSBs)) OF ResultsPerSSB-Index
```

```
ResultsPerSSB-Index ::=                 SEQUENCE {
    ssb-Index                               SSB-Index,
    ssb-Results                             MeasQuantityResults                 OPTIONAL
}

ResultsPerCSI-RS-IndexList::=           SEQUENCE (SIZE (1..maxNrofCSI-RS)) OF ResultsPerCSI-RS-Index

ResultsPerCSI-RS-Index ::=              SEQUENCE {
    csi-RS-Index                            CSI-RS-Index,
    csi-RS-Results                          MeasQuantityResults                 OPTIONAL
}

-- TAG-MEAS-RESULTS-STOP
-- ASN1STOP
```