



4,5G LTE
800&1800&2600Mhz

ÖLÇEKLİ YERLEŞİM VE
GÜVENLİK MESAFESİ PLANLARI
REVİZYON

| | |
|--------------------|---|
| SİTE NO : | LBT0802 |
| SİTE ADI : | BAHÇELİEVLER MAH. |
| KURULACAĞI ADRES : | BAHÇELİEVLER MAHALLESİ 1635.SOKAK NO:6 MERKEZ / BATMAN |
| KOORDİNATLAR : | N 37° 53' 24,80" E 41° 08' 07,70" |



| | |
|-------------------|--------------------------|
| SİTE NO : | LBT0802 |
| SİTE ADI : | BAHÇELİEVLER MAH. |

- 1- MEVCUTTA 2G+3G2100+L800+L1800Mhz ÇALIŞAN 3 ADET ASI4518R11 ANTENLERE L2600Mhz BAND İLAVESİ YAPILACAKTIR. 2G&3G2100<E800-1800-2600 TEKNOLOJİLERİ ORTAK OLARAK ÇALIŞTIRILACAKTIR.
- 2- MEVCUT SİSTEM MODÜLLERİ DEMONTE EDİLEREK YERİNE AIRSCALE MODÜL MONTAJI YAPILACAKTIR.
- 3-
- 4-
- 5-

Tarih: LBT0802
8.05.2021

ANTEN TESİSİ BAŞVURU FORMU

18 Mart Tarih ve 27878 sayılı Resmi Gazete 'de yayımlanarak yürürlüğe giren Hücresel Sistem Anten Tesislerinin Tasarımı ve Paylaşımına İlişkin ve Esaslar Hakkında Yönetmelikte (HSAT) yer alan hükümlere uygun olarak ~~Yeni bir anten tesisi~~ / Mevcut anten tesisi paylaşımı yoluyla kurulması planlanan sistemimiz için gerekli izinlerin verilmesi hususunu tensiplerinize arz ederiz.

Kaşe / İmza

KURULMASI PLANLANAN ANTEN TESİSİNE AİT BİLGİLER:

SİTE NO: LBT0802
KOORDİNAT: N 37° 53' 24,80" E 41° 08' 07,70"
KURULACAĞI YER: ÇATI ÜZERİ
KURULACAĞI ADRES: BAHÇELİEVLER MAHALLESİ 1635.SOKAK NO:6 MERKEZ / BATMAN
KURULACAĞI İL: BATMAN
İLÇE: MERKEZ

YENİ ANTEN SİSTEMİ KURMA GEREKÇESİ(LERİ) :

- 1- KAPSAMA PROBLEMLERİ ☒
2- MÜŞTERİ ŞİKAYETLERİ ☒
3- KALİTE PROBLEMLERİ
4- KAPASİTE PROBLEMLERİ

GEREKÇELERE İLİŞKİN BELGELER:

- 1- EK-B 4- KROKİLER
2- EK-D 5-GOOGLE EARTH
3- FOTOĞRAFLAR 6-ANTEN KATALOĞU

PAYLAŞILACAK İLAVE KAPASİTE BİLGİLERİ:

Tip1:.....İşletmeci

Tip2:.....İşletmeci

Tip3:.....İşletmeci

II. PAYLAŞILAN ANTEN TESİSİ:

TESİS PAYLAŞIMI YAPILAN İŞLETMECİ:



TT Mobill

MEVCUT TESİSDEKİ İLK KURULAN SİSTEME AİT SİTE ID:

BT0802-WBT0802-IBT0802..

PAYLAŞIM TİPLERİ:

| | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Tip 1: Arazi ve/veya bina paylaşımı |
| <input type="checkbox"/> | Tip 2: Kule veya direk paylaşımı |
| <input checked="" type="checkbox"/> | Tip 3: Kanal ve/veya boruların paylaşımı |
| <input checked="" type="checkbox"/> | Tip 4: Oda/konteyner ve iklimlendirme sistemlerinin paylaşımı |
| <input checked="" type="checkbox"/> | Tip 5: Anten ve anten elemanlarının paylaşımı |
| <input checked="" type="checkbox"/> | Tip 6: Ses/veri iletim ve ekipmanların paylaşımı |

| | | | | | | | | | | | | | | | |
|--|--------------------------------------|---|---|------|---|-----------------|--|----------------|-----------------|-------------------------|----------------|-----------------|------------------|----------------|----------------|
|  BTK BİLGİ TEKNOLOJİLERİ VE İLETİŞİM KURUMU | SABİT TELEKOMÜNİKASYON CİHAZI | | | | | | | | | | | | | | |
| | MÜRACAAT DEĞERLENDİRME FORMU | | | | | | | | | | | | | | |
| | MEVCUT | | | YENİ | | | | | | | | | | | |
| | H | T | R | H | T | R | | | | | | | | | |
| AÇIKLAMALAR | | | | | | | | | | | | | | | |
| İŞLETMECİ/İŞLETİCİNİN AD/ÜNVANI | X | | | | | | TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | | | | | | | | |
| ŞİRKET ADI VE YAYIN LOGOSU | | | | | | |  | | | | | | | | |
| CHAZIN KURULU BULUNDUĞU AÇIK ADRES | X | | | | | | BAHÇELİEVLER MAHALLESİ 1635.SOKAK NO:6 MERKEZ / BATMAN | | | | | | | | |
| KOORDİNAT | X | | | | | | N 37° 53' 24,80" | | | E 41° 08' 07,70" | | | | | |
| SİTE ID | X | | | | | | LBT0802 | | | | | | | | |
| MARKA | X | | | | | | NOKIA | | | | | | | | |
| MODEL | X | | | | | | AIRSCALE | | | | | | | | |
| KULLANILAN FREKANS | X | | | | | | 4,5G | | | | | | | | |
| KATALOG ÇIKIŞ GÜCÜ (Watt) | X | | | | | | 80W | | | | | | | | |
| | | | | | | SEKTÖR 1 | | | SEKTÖR 2 | | | SEKTÖR 3 | | | |
| | | | | | | | S1-A | S1-B | S1-C | S2-A | S2-B | S2-C | S3-A | S3-B | S3-C |
| KULLANILAN FREKANS | | | | | | | 800Mhz | 1800Mhz | 2600Mhz | 800Mhz | 1800Mhz | 2600Mhz | 800Mhz | 1800Mhz | 2600Mhz |
| KULLANILAN MAXIMUM ÇIKIŞ GÜCÜ (Watt) | X | | | | | | 20 | | | 20 | | | 20 | | |
| ANTEN KAZANCI (dB) | X | | | | | | 13,7 | 17,00 | 18,20 | 13,7 | 17,00 | 18,20 | 13,7 | 17 | 18,20 |
| ANTEN SAYISI | X | | | | | | 1 | | | 1 | | | 1 | | |
| ANTEN TİPİ | X | | | | | | ASI4518R11 | | | ASI4518R11 | | | ASI4518R11 | | |
| *ANTEN YAYIN PATERNİ (Kroki Üzerinde) | X | | | | | | KROKİ | | | KROKİ | | | KROKİ | | |
| ANTENİN YERDEN YÜKSEKLİĞİ | X | | | | | | 26,50 | | | 26,50 | | | 26,50 | | |
| YETKİSİZ ERİŞİM (Balkon-Teras) | X | | | | | | ENGELLENMEKTEDİR | | | ENGELLENMEKTEDİR | | | ENGELLENMEKTEDİR | | |
| BİNA YÜZEYİNE YANSITICI LEVHA | X | | | | | | GEREK YOKTUR | | | GEREK YOKTUR | | | GEREK YOKTUR | | |
| GÜVENLİK MESAFESİ (m.) | X | | | | | | 15,25 | 14,86 | 16,19 | 15,25 | 14,86 | 16,19 | 15,25 | 14,86 | 16,19 |
| * SAĞLIK KURULUŞU BİNASINA GÖRE | X | | | | | | GÜVENLİK MESAFESİ İÇİNDE SAĞLIK KURULUŞU YOKTUR. | | | | | | | | |
| * OKUL BAHÇE DUVARI SINIRINA GÖRE | X | | | | | | GÜVENLİK MESAFESİ İÇİNDE OKUL YOKTUR. | | | | | | | | |
| * GEREKÇE RAPORU | | | | | | | | | | | | | | | |
| * TELSİZ KULLANIM ŞEMASI | | | | | | | | | | | | | | | |
| * İLGİLİ TK FORMLARI | | | | | | | | | | | | | | | |
| * KAPASİTE RAPORU | | | | | | | | | | | | | | | |
| * İMZA SİRKÜLERİ | | | | | | | | | | | | | | | |
| * VERGİ LEVHASI | | | | | | | | | | | | | | | |
| * ÇALIŞANLARIN SİGORTA BİLDİRGESİ | | | | | | | | | | | | | | | |
| * TİCARET SİCİL GAZETESİ | | | | | | | | | | | | | | | |
| * SÖZLEŞME FOTOKOPİSİ | | | | | | | | | | | | | | | |
| * ARAÇ RUHSAT FOTOKOPİSİ | | | | | | | | | | | | | | | |
| * ÖLÇEKLİ YERLEŞİM KROKİSİ | X | | | | | | KROKİ | | | | | | | | |
| * ANTEN MONTAJ YERİ KROKİSİ | X | | | | | | KROKİ | | | | | | | | |
| * TOPRAKLAMA SİSTEMİ | X | | | | | | MEVCUTTUR VE DİRENCİ 5 OHM UN ALTINDADIR. | | | | | | | | |
| * PARATONER | X | | | | | | MEVCUTTUR. | | | | | | | | |
| * SİVİL HAVACILIK TEDBİRLERİ | X | | | | | | GEREKMEMEKTEDİR. | | | | | | | | |
| İŞLETME/ İŞLETMECİ: TT MOBİL İletişim Hizmetleri A.Ş. | | | | | | | | | | KONTROL: | | | | | |

H: Hızlı Servis Sistemi, T: Telsiz Sistemi, R: Radyo, TV Yürütülen

* Aynı belgeyi göndermek veya belge sisteminde belirtilen evraklar

| | |
|------------|--|
| SITE ADI | BAHÇELİEVLER MAH. |
| SITE NO | LBT0802 |
| SITE ADRES | BAHÇELİEVLER MAHALLESİ 1635.SOKAK NO:6 MERKEZ / BATMAN |

YETKİSİZ ERİŞİMİN ENGELLENMESİ:

İSTASYONA YETKİSİZ ERİŞİM TERAS KAPISI KİLİTLENEREK ENGELLENECEKTİR.

BİNA YÜZEYİNDE YANSITICI LEVHA DURUMU:

KULLANILMAYACAKTIR.

ÇOCUK OYUN PARKI DURUMU:

GÜVENLİK MESAFESİ İÇİNDE ÇOCUKLAR İÇİN AYRILMIŞ OYUN ALANLARI SINIRI YOKTUR.

TOPRAKLAMA DURUMU

MEVCUTTUR VE DİRENÇİ 5 OHM UN ALTINDADIR.

PARATONER DURUMU:

MEVCUTTUR.

SİVİL HAVACILIK TEDBİRLERİ:

GEREKMEMEKTEDİR.

| Hazırlayan | Yetkili İmza | Site No - Adı | |
|------------|--------------|-------------------|-------------------|
| | | LBT0802 | BAHÇELİEVLER MAH. |
| | | Koordinatlar | |
| | | N= 37° 53' 24,80" | E= 41° 08' 07,70" |

PLANLANAN GÜVENLİK MESAFESİ HESAP TABLOSU

| HÜCRE 1 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 7,778 | 13,70 | 20 | 800 |

GÜVENLİK MESAFESİ

15,25 (metre)

| HÜCRE 2 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 7,778 | 13,70 | 20 | 800 |

15,25 (metre)

| HÜCRE 3 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 7,778 | 13,70 | 20 | 800 |

15,25 (metre)

| HÜCRE 4 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | | | | |

(metre)

HÜCRE 1

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 15,25 \text{ (metre)}$$

HÜCRE 2

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 15,25 \text{ (metre)}$$

HÜCRE 3

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 15,25 \text{ (metre)}$$

HÜCRE 4

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = \text{ (metre)}$$

PLANLANAN GÜVENLİK MESAFESİ HESAP TABLOSU

| HÜCRE 1 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 11,667 | 17,00 | 20 | 1800 |

GÜVENLİK MESAFESİ

14,86 (metre)

| HÜCRE 2 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 11,667 | 17,00 | 20 | 1800 |

14,86 (metre)

| HÜCRE 3 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 11,667 | 17,00 | 20 | 1800 |

14,86 (metre)

| HÜCRE 4 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | | | | |

(metre)

HÜCRE 1

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 14,86 \text{ (metre)}$$

HÜCRE 2

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 14,86 \text{ (metre)}$$

HÜCRE 3

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 14,86 \text{ (metre)}$$

HÜCRE 4

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = \text{ (metre)}$$

PLANLANAN GÜVENLİK MESAFESİ HESAP TABLOSU

| HÜCRE 1 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 12,300 | 18,20 | 20 | 2600 |

GÜVENLİK MESAFESİ

16,19 (metre)

| HÜCRE 2 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 12,300 | 18,20 | 20 | 2600 |

16,19 (metre)

| HÜCRE 3 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | 12,300 | 18,20 | 20 | 2600 |

16,19 (metre)

| HÜCRE 4 | E (V/m) | G (dBi) | P _{AKTİF} (W) | F (MHz) |
|---------|---------|---------|------------------------|---------|
| | | | | |

(metre)

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 16,19 \text{ (metre)}$$

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 16,19 \text{ (metre)}$$

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = 16,19 \text{ (metre)}$$

$$d = \frac{\sqrt{30 \cdot P \cdot 10^{G/10}}}{E} = \text{ (metre)}$$

| | | |
|---|---|---|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

SAHA GENEL GÖRÜNÜM

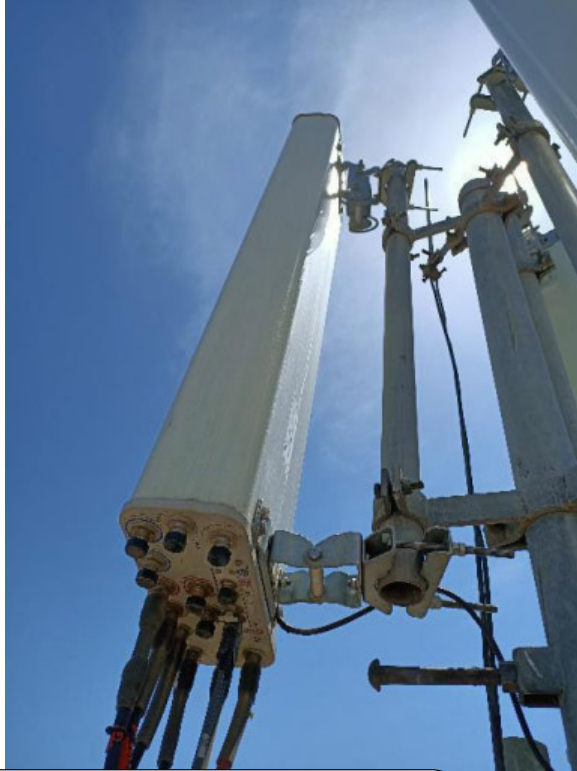
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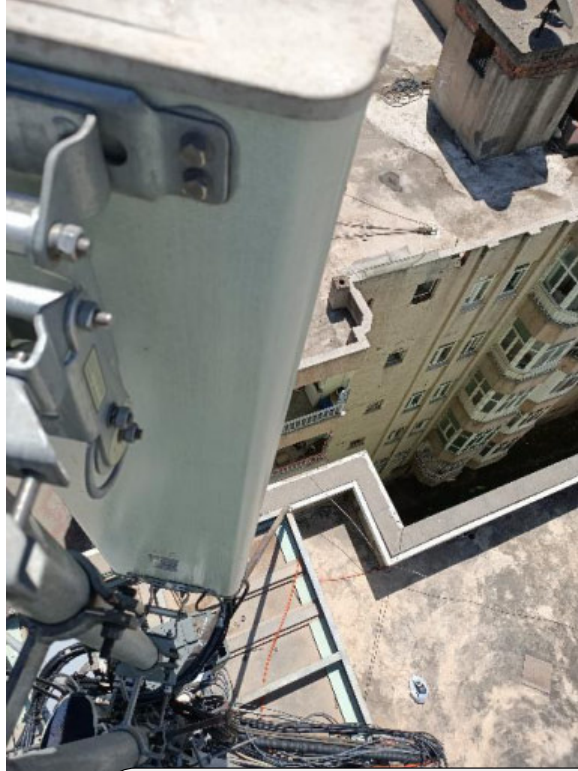
| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

| | | |
|---|---|---|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

SİSTEM VE ANTEN YERLEŞİMİ



CELL.1 (20°)
ANTEN TIPI : ASI4518R11
YUKSEKLİK: 26,5 m.
ANTEN KAZANCI : 13,7 dBi 17 dBi 18,2 dBi
MECH TILT: 2° - ELECT TILT: 6-3-0°
GUVENLIK MESAFESI: 15,25m. 14,86m. 16,19m.



CELL.2 (160°)
ANTEN TIPI : ASI4518R11
YUKSEKLİK: 26,5 m.
ANTEN KAZANCI : 13,7 dBi 17 dBi 18,2 dBi
MECH TILT: 2° - ELECT TILT: 6-3-0°
GUVENLIK MESAFESI: 15,25m. 14,86m. 16,19m.

| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

| | | |
|---|---|---|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

SİSTEM VE ANTEN YERLEŞİMİ



CELL.3 (290°)
 ANTEN TIPI : ASI4518R11
 YUKSEKLİK: 26,5 m.
 ANTEN KAZANCI : 13,7 dBi 17 dBi 18,2 dBi
 MECH TILT: 2° - ELECT TILT: 6-3-0°
 GUVENLIK MESAFESI: 15,25m. 14,86m. 16,19m.

| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

| | | |
|---|---|---|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

4,5G SEKTÖR YÖNLERİ

1.SEKTÖR ANTEN BAKIŞ YÖNÜ 20°



2.SEKTÖR ANTEN BAKIŞ YÖNÜ 160°



| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

| | | |
|---|---|---|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

4,5G SEKTÖR YÖNLERİ

3.SEKTÖR ANTEN BAKIŞ YÖNÜ 290°



| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

| | | |
|----------------------------------|--|--|
| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Site No: LBT0802 |

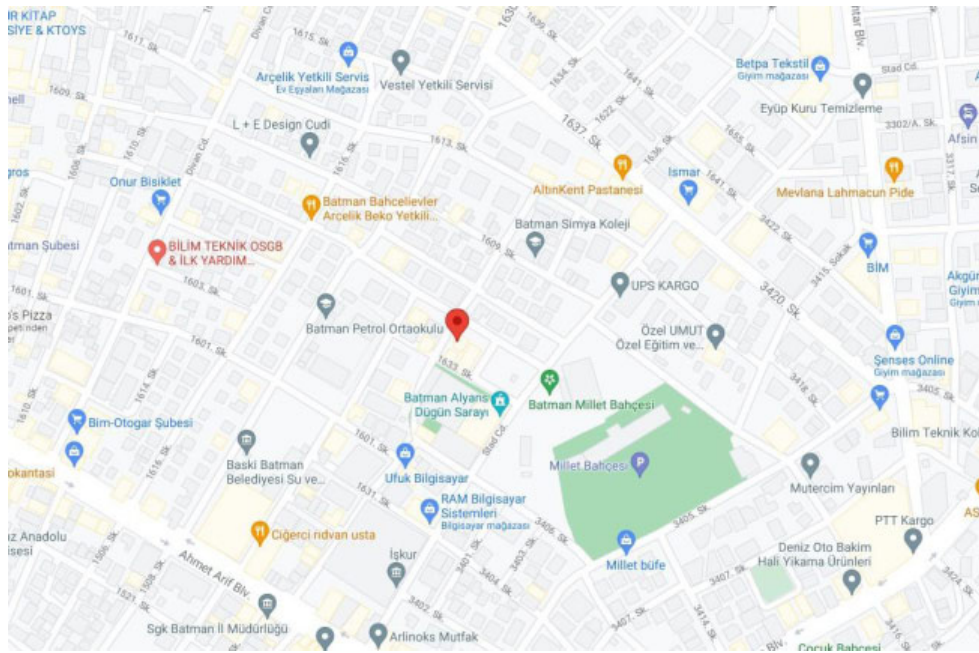
YETKİSİZ ERİŞİM 1/UNAUTHORIZED ACCESS 1



YETKİSİZ ERİŞİM 2/UNAUTHORIZED ACCESS 2

| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |

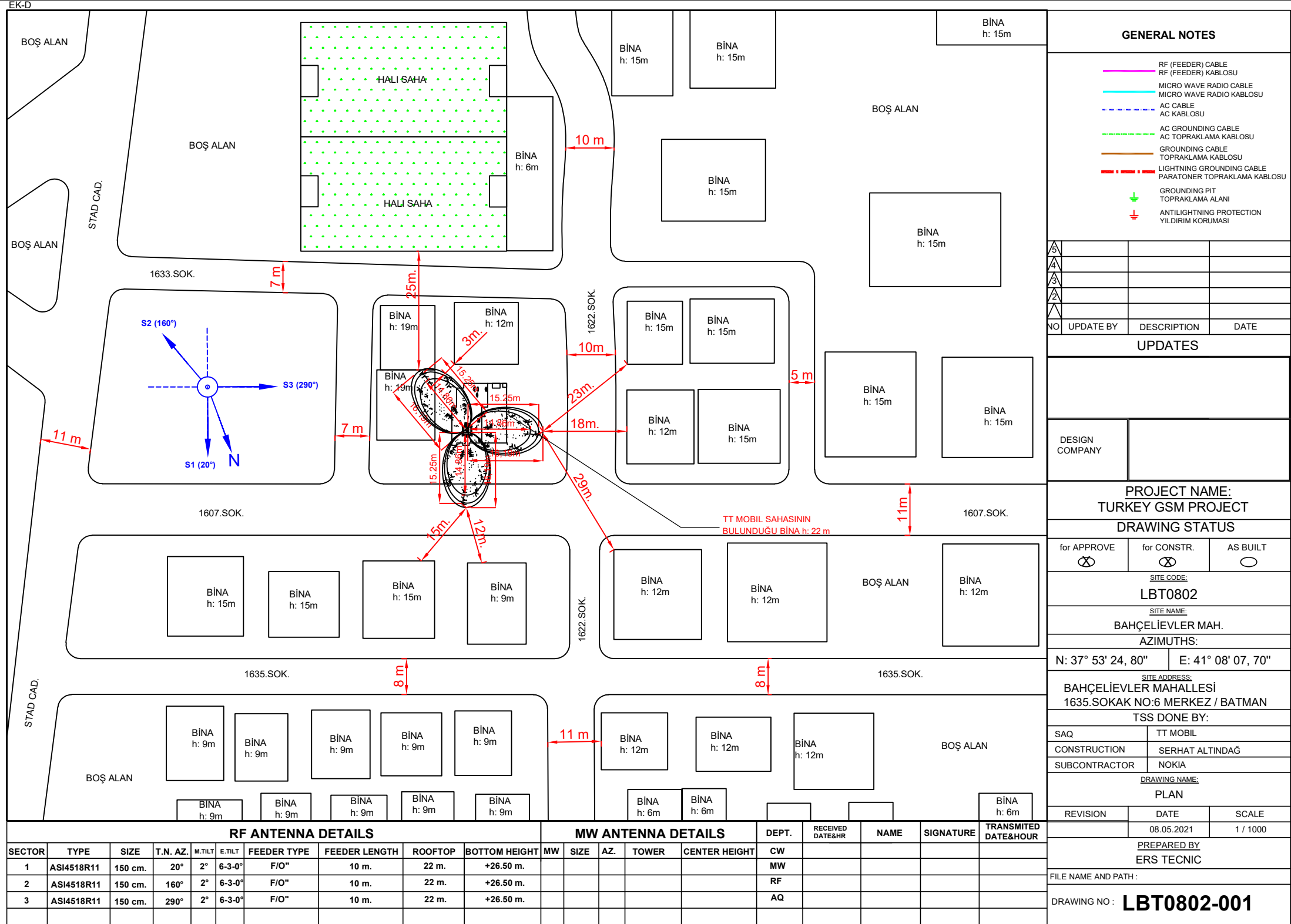
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| Düzenleyen – Prepared NOKIA | Sorumlu - Subject responsible TT MOBİL İLETİŞİM HİZMETLERİ A.Ş. | İstasyon İsmi - Site Name BAHÇELİEVLER MAH. |
| Onaylayan - Doc.Respons/Approved | Tarih – Date 8.05.2021 | Dosya - Reference File LBT0802 |

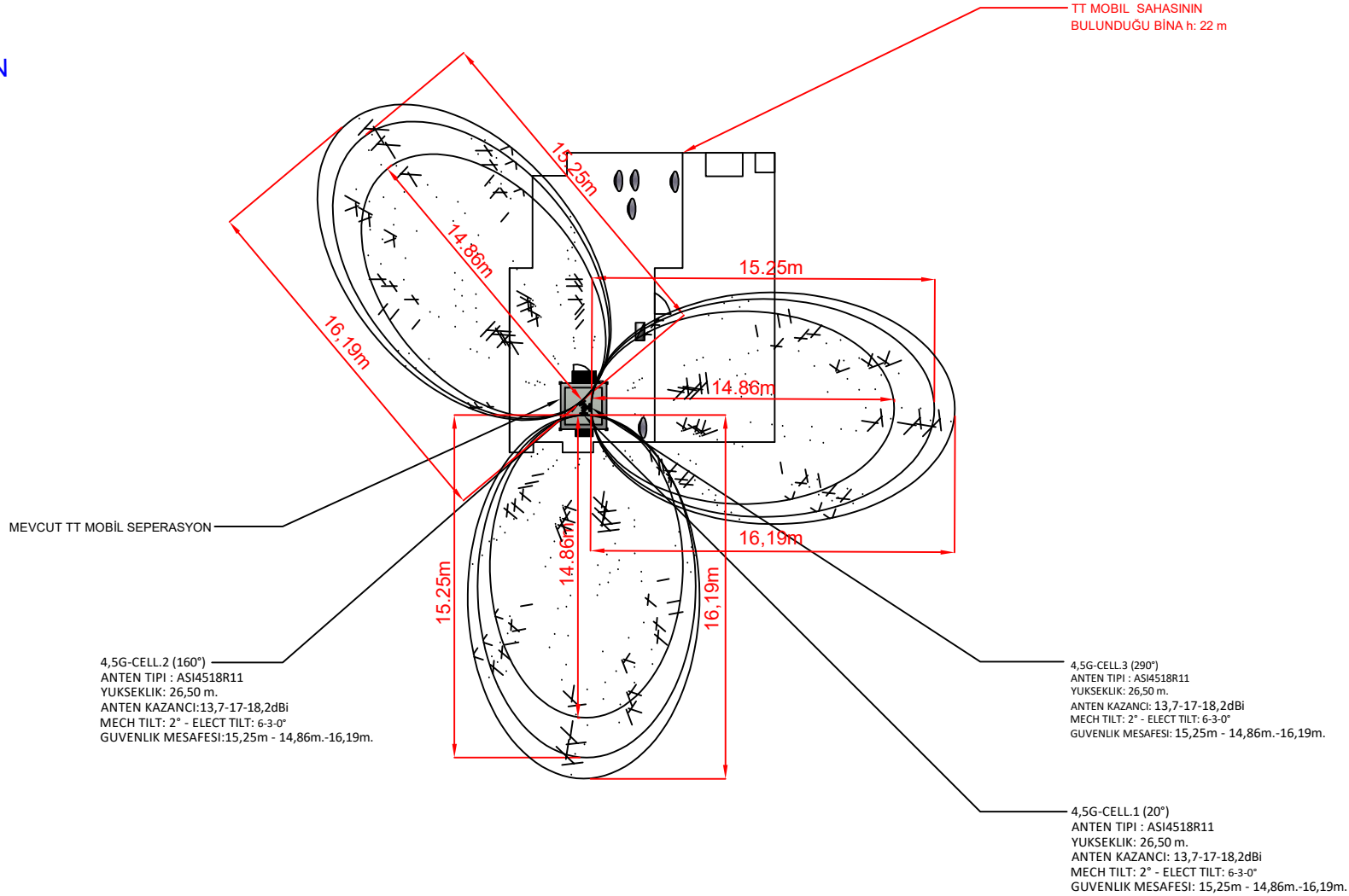
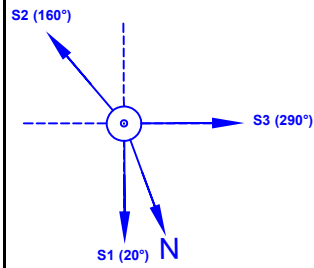


İSTASYON YOL TARİFİ

BAHÇELİEVLER MAHALLESİ 1635.SOKAK NO:6 MERKEZ / BATMAN

| Approved | Signature | Date |
|----------|-----------|-----------|
| | | 8.05.2021 |





GENERAL NOTES

- RF (FEEDER) CABLE
RF (FEEDER) KABLOSU
- MICRO WAVE RADIO CABLE
MICRO WAVE RADIO KABLOSU
- AC CABLE
AC KABLOSU
- AC GROUNDING CABLE
AC TOPRAKLAMA KABLOSU
- GROUNDING CABLE
TOPRAKLAMA KABLOSU
- LIGHTNING GROUNDING CABLE
PARATONER TOPRAKLAMA KABLOSU
- GROUNDING PIT
TOPRAKLAMA ALANI
- ANTILIGHTNING PROTECTION
YILDIRM KORUMASI

| | | | |
|----|-----------|-------------|------|
| A | | | |
| A | | | |
| A | | | |
| A | | | |
| A | | | |
| NO | UPDATE BY | DESCRIPTION | DATE |

UPDATES

DESIGN
COMPANYPROJECT NAME:
TURKEY GSM PROJECT

DRAWING STATUS

for APPROVE



for CONSTR.



AS BUILT



SITE CODE:

LBT0802

SITE NAME:

BAHÇELİEVLER MAH.

AZIMUTHS:

N: 37° 53' 24, 80"

E: 41° 08' 07, 70"

SITE ADDRESS:

BAHÇELİEVLER MAHALLESİ
1635.SOKAK NO:6 MERKEZ / BATMAN

TSS DONE BY:

SAQ

TT MOBİL

CONSTRUCTION

SERHAT ALTINDAĞ

SUBCONTRACTOR

NOKIA

DRAWING NAME:

PLAN_DETAIL

REVISION

DATE

SCALE

08.05.2021

1 / 300

PREPARED BY
ERS TECNIC

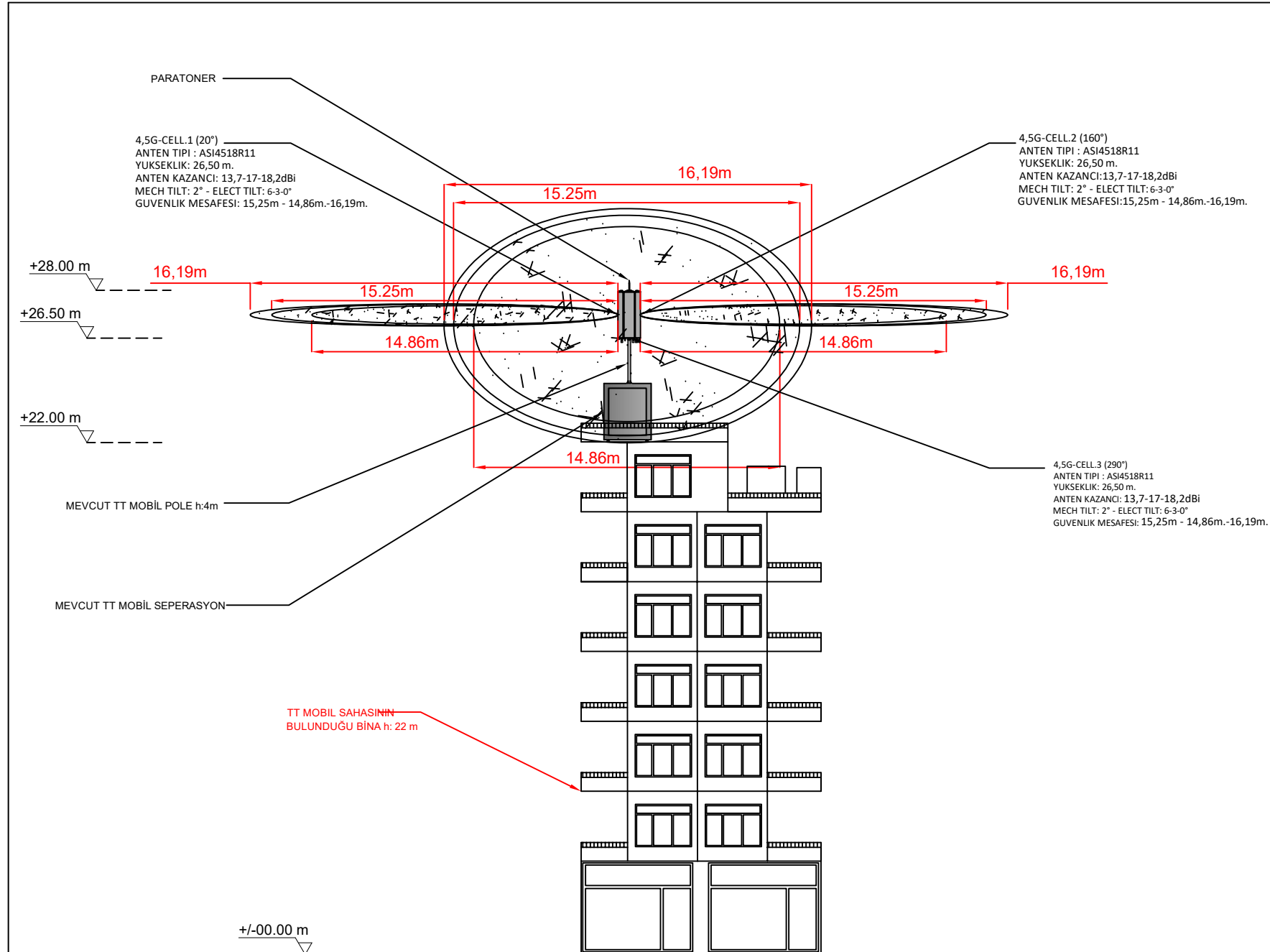
FILE NAME AND PATH :

DRAWING NO : **LBT0802-002**

RF ANTENNA DETAILS

MW ANTENNA DETAILS

| SECTOR | TYPE | SIZE | T.N. AZ. | M.TILT | E.TILT | FEEDER TYPE | FEEDER LENGTH | ROOFTOP | BOTTOM HEIGHT | MW | SIZE | AZ. | TOWER | CENTER HEIGHT | CW | RECEIVED DATE&HR | NAME | SIGNATURE | TRANSMITTED DATE&HOUR |
|--------|------------|---------|----------|--------|--------|-------------|---------------|---------|---------------|----|------|-----|-------|---------------|----|------------------|------|-----------|-----------------------|
| 1 | ASI4518R11 | 150 cm. | 20° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | MW | | | | |
| 2 | ASI4518R11 | 150 cm. | 160° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | RF | | | | |
| 3 | ASI4518R11 | 150 cm. | 290° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | AQ | | | | |



GENERAL NOTES

- RF (FEEDER) CABLE
RF (FEEDER) KABLOSU
- MICRO WAVE RADIO CABLE
MICRO WAVE RADIO KABLOSU
- AC CABLE
AC KABLOSU
- AC GROUNDING CABLE
AC TOPRAKLAMA KABLOSU
- GROUNDING CABLE
TOPRAKLAMA KABLOSU
- LIGHTNING GROUNDING CABLE
PARATONER TOPRAKLAMA KABLOSU
- GROUNDING PIT
TOPRAKLAMA ALANI
- ANTILIGHTNING PROTECTION
YILDIRIM KORUMASI

| | | | |
|----|-----------|-------------|------|
| A | | | |
| A | | | |
| A | | | |
| A | | | |
| NO | UPDATE BY | DESCRIPTION | DATE |

UPDATES

DESIGN
COMPANYPROJECT NAME:
TURKEY GSM PROJECT

DRAWING STATUS

| | | |
|------------------|------------------|---------------|
| for APPROVE ⊗ | for CONSTR. ⊗ | AS BUILT ○ |
|------------------|------------------|---------------|

SITE CODE:

LBT0802

SITE NAME:

BAHÇELİEVLER MAH.

AZIMUTHS:

N: 37° 53' 24, 80" E: 41° 08' 07, 70"

SITE ADDRESS:

BAHÇELİEVLER MAHALLESİ
1635.SOKAK NO:6 MERKEZ / BATMAN

TSS DONE BY:

| | |
|---------------|-----------------|
| SAQ | TT MOBİL |
| CONSTRUCTION | SERHAT ALTINDAĞ |
| SUBCONTRACTOR | NOKIA |

DRAWING NAME:

FRONT_VIEW

| | | |
|----------|------------|---------|
| REVISION | DATE | SCALE |
| | 08.05.2021 | 1 / 250 |

PREPARED BY
ERS TECNIC

FILE NAME AND PATH :

DRAWING NO : **LBT0802-003**

RF ANTENNA DETAILS

| RF ANTENNA DETAILS | | | | | | | | | | MW ANTENNA DETAILS | | | | | DEPT. | RECEIVED DATE&HR | NAME | SIGNATURE | TRANSMITTED DATE&HOUR |
|--------------------|------------|---------|----------|--------|--------|-------------|---------------|---------|---------------|--------------------|------|-----|---------|---------------|-------|---------------------|------|-----------|--------------------------|
| SECTOR | TYPE | SIZE | T.N. AZ. | M.TILT | E.TILT | FEEDER TYPE | FEEDER LENGTH | ROOFTOP | BOTTOM HEIGHT | MW | SIZE | AZ. | ROOFTOP | CENTER HEIGHT | CW | | | | |
| 1 | ASI4518R11 | 150 cm. | 20° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | MW | | | | |
| 2 | ASI4518R11 | 150 cm. | 160° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | RF | | | | |
| 3 | ASI4518R11 | 150 cm. | 290° | 2° | 6-3-0° | F/O" | 10 m. | 22 m. | +26.50 m. | | | | | | AQ | | | | |

ASI4518R11

DXXXXXX-690-862/880-960/1710-2200/2490-2690/1710-2690/1710-2690-
65/65/65/65/65/65-14i/14.5i/17i/17.5i/17.5i/17.5i-M/M/M/M/M/M-R
EasyRET Hexa-Band Antenna with 6 Integrated RCUs - 1.4m



Antenna Specifications

| Electrical Properties | | | | | | | | |
|--|----------------|---|-----------|----------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz) | | 690 - 862 (r1) | | 880 - 960 (r2) | 1710 - 2690 (Cy2) | | | |
| | | 690 - 803 | 790 - 862 | | 1710 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization | | +45° , -45° | | | +45° , -45° | | | |
| Electrical downtilt (°) | | 2 - 14 , continuously adjustable , each band separately | | | 2 - 12 , continuously adjustable | | | |
| Gain (dBi) | at mid Tilt | 13.8 | 13.7 | 14.0 | 17.0 | 17.2 | 17.7 | 18.2 |
| | over all Tilts | 13.7 ±0.3 | 13.7 ±0.5 | 13.9 ±0.3 | 16.8 ±0.5 | 17.0 ±0.4 | 17.6 ±0.5 | 17.8 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | | > 16 | > 16 | > 15 | > 15 | > 16 | > 16 | > 15 |
| Horizontal 3dB beam width (°) | | 68 ±3.0 | 65 ±2.6 | 64 ±3.2 | 63 ±5.1 | 62 ±5.0 | 63 ±4.0 | 58 ±3.0 |
| Vertical 3dB beam width (°) | | 15.5 ±2.1 | 13.6 ±1.8 | 12.3 ±1.8 | 6.3 ±0.4 | 5.8 ±0.3 | 5.0 ±0.2 | 4.7 ±0.2 |
| VSWR | | < 1.5 | | | < 1.5 | | | |
| Cross polar isolation (dB) | | ≥ 28 | | | ≥ 28 | | | |
| Interband isolation (dB) | | ≥ 28 | | | ≥ 28 | | | |
| Front to back ratio , ±30° (dB) | | > 23 | > 25 | > 25 | > 25 | > 27 | > 27 | > 27 |
| Cross polar ratio (dB) | 0° | > 18 | > 20 | > 20 | > 18 | > 16 | > 15 | > 16 |
| Max. power per input (W) | | 500 (at 50℃ ambient temperature) * | | | 250 (at 50℃ ambient temperature) * | | | |
| Intermodulation IM3 (dBc) | | ≤ -150 (2 x 43 dBm carrier) | | | ≤ -153 (2 x 43 dBm carrier) | | | |
| Impedance (Ω) | | 50 | | | | | | |
| Grounding | | DC Ground | | | | | | |

| Electrical Properties | | | | | | | | |
|--|---|-------------|-------------|-------------|-------------------|-------------|-------------------|------------|
| Frequency range (MHz) | 1710 - 2690 (Ly1) | | | | 1710 - 2200 (Rb1) | | 2490 - 2690 (Ry3) | |
| | 1710 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1710 - 1990 | 1920 - 2200 | | |
| Polarization | +45°, -45° | | | | | | | |
| Electrical downtilt (°) | 2 - 12, continuously adjustable, each band separately | | | | | | | |
| Gain (dBi) | at mid Tilt | 17.2 | 17.8 | 17.8 | 18.2 | 16.9 | 17.5 | 17.8 |
| | over all Tilts | 17.0 ± 0.5 | 17.7 ± 0.4 | 17.5 ± 0.3 | 18.1 ± 0.3 | 16.7 ± 0.5 | 17.4 ± 0.4 | 17.7 ± 0.3 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16 | > 17 | > 17 | > 16 | > 15 | > 16 | > 16 | |
| Horizontal 3dB beam width (°) | 68 ± 3.0 | 66 ± 3.0 | 63 ± 3.0 | 60 ± 2.0 | 68 ± 3.0 | 66 ± 3.0 | 60 ± 3.0 | |
| Vertical 3dB beam width (°) | 6.6 ± 0.4 | 6.1 ± 0.4 | 5.4 ± 0.4 | 4.9 ± 0.4 | 6.4 ± 0.5 | 5.8 ± 0.5 | 4.8 ± 0.4 | |
| VSWR | < 1.5 | | | | | | | |
| Cross polar isolation (dB) | ≥ 28 | | | | | | | |
| Interband isolation (dB) | ≥ 28 | | | | | | | |
| Front to back ratio, ±30° (dB) | > 27 | > 27 | > 27 | > 27 | > 25 | > 25 | > 25 | |
| Cross polar ratio (dB) | 0° | > 20 | > 18 | > 15 | > 17 | > 18 | > 16 | > 18 |
| Max. power per input (W) | 250 (at 50°C ambient temperature) * | | | | | | | |
| Intermodulation IM3 (dBc) | ≤ -153 (2 x 43 dBm carrier) | | | | | | | |
| Impedance (Ω) | 50 | | | | | | | |
| Grounding | DC Ground | | | | | | | |

* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

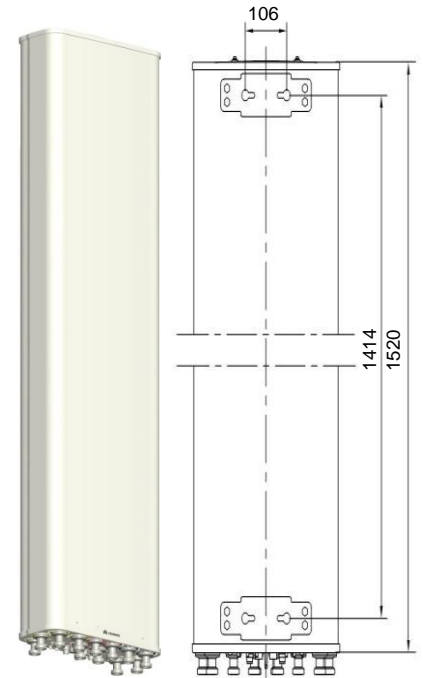
ASI4518R11

DXXXXXX-690-862/880-960/1710-2200/2490-2690/1710-2690/1710-2690-
65/65/65/65/65/65-14i/14.5i/17i/17.5i/17.5i/17.5i-M/M/M/M/M/M-R
EasyRET Hexa-Band Antenna with 6 Integrated RCUs - 1.4m



Mechanical Properties

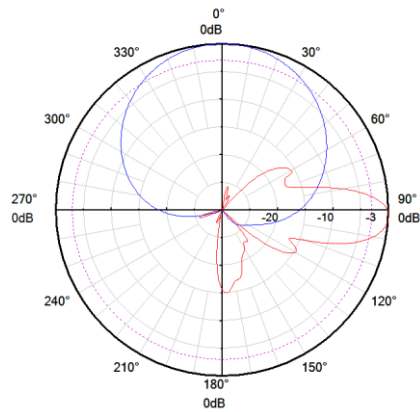
| | |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1520 x 369 x 149 |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240 |
| Antenna weight (kg) | 29.0 |
| Clamps weight (kg) | 3.6 (2 units) |
| Antenna packing weight (kg) | 39.2 (Included clamps) |
| Mast diameter supported (mm) | 50 - 115 |
| Radome material | Fiberglass |
| Radome colour | Light grey |
| Operational temperature (°C) | -40 .. +65 |
| Wind load (N) | Frontal: 730 (at 150 km/h) Lateral: 145 (at 150 km/h) Rear side: 725 (at 150 km/h) |
| Max. operational wind speed (km/h) | 200 |
| Survival wind speed (km/h) | 250 |
| Connector | 12 x 7/16 DIN Female |
| Connector position | Bottom |



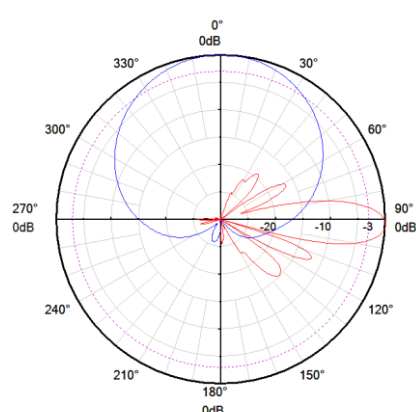
Accessories

| Item | Model | Description | Weight | Units per antenna |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

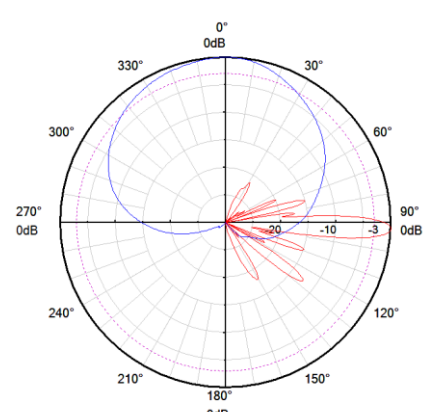
Pattern sample for reference



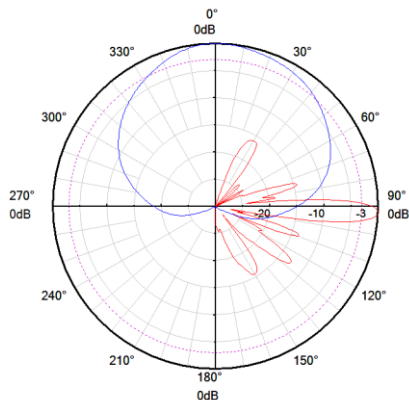
690 - 862 MHz



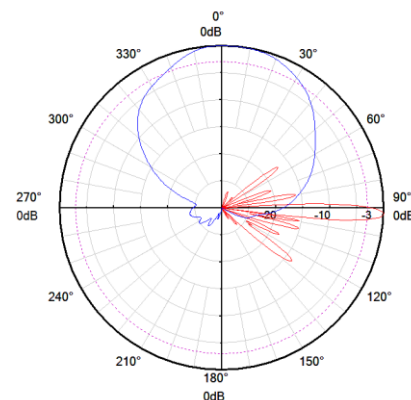
880 - 960 MHz



1710 - 2690 MHz



1710 - 2200 MHz



2490 - 2690 MHz

ASI4518R11

DXXXXXX-690-862/880-960/1710-2200/2490-2690/1710-2690/1710-2690-
65/65/65/65/65/65-14i/14.5i/17i/17.5i/17.5i/17.5i-M/M/M/M/M-R
EasyRET Hexa-Band Antenna with 6 Integrated RCUs - 1.4m



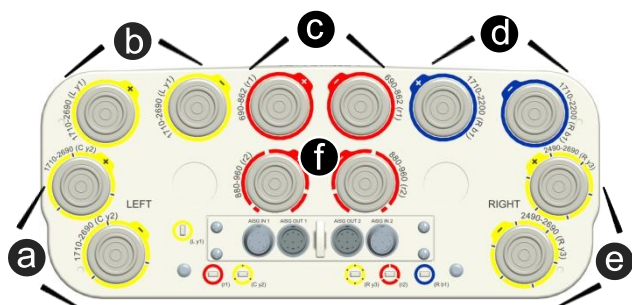
Integrated RET Specifications

| Properties | | | | | | | | |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type | Integrated RET | | | | | | | |
| RET protocols* | AISG 2.0 / 3GPP | | | | | | | |
| Input voltage range (V) | 10 - 30 DC | | | | | | | |
| Power consumption (W) | < 6 (motor activated, 12V) < 1.5 (stand by, 12V) | | | | | | | |
| Adjustment time (full range) (s) | < 65 (typically, depending on antenna type) | | | | | | | |
| RET connector | 4 x 8 pin connector according to IEC 60130-9 Daisy chain in: Male / Daisy chain out: Female | | | | | | | |
| Pin assignment according AISG | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | DC | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA) | 3 (10/350 μ s) 10 (8/20 μ s) | | | | | | | |

* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

Standards: UL 60950-1 (Safety), UL 60950-22 (Safety – Equipment installed outdoor), EN 55022 (Emission),
EN 55024 (Immunity), ETSI EN 301 489, FCC Part15, ICES-003

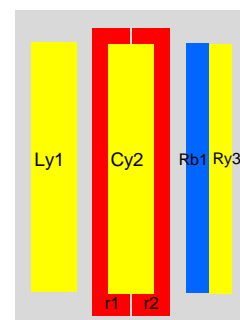
Certification: CE, FCC, IC, RCM



Integrated RET S/N:

- a HWMxxx.....Cy2
- b HWMxxx.....Ly1
- c HWMxxx.....r1
- d HWMxxx.....Rb1
- e HWMxxx.....Ry3
- f HWMxxx.....r2

r - Red y - Yellow b - Blue
L - Left array R - Right array C - Center array



NOTE

1. Facilities, such as towers and poles, must bear the weight and wind load of antennas.
2. HUAWEI 's standard brackets and accessories must be used for any installation.
3. The antenna working environment must meet the requirements specified in the datasheet.
4. Only qualified personnel are allowed to perform installation. Installation tools and procedures must conform to requirements described in the antenna installation guide.